Oslo universitetssykehus

UiO : Institutt for klinisk medisin
Det medisinske fakultet

ÅRSRAPPORT FRA FORSKNINGSGRUPPENE 2020

Klinikk for kirurgi, inflammasjonsmedisin og transplantasjon (KIT)

Innholdsfortegnelse

Forord

Hovedsaken for forskningsåret 2020 – Covid-19 – trenger ingen videre omtale her. Det har vært et vanskelig år for alle, og viktigste å fremheve er kanskje hvordan forskerne i KIT har vist stor tilpasningsdyktighet gjennom koronaåret 2020. Ikke bare har de måttet gjenoppfinne undervisning og studentkontakt gjennom digitale verktøy, de har i tillegg skrevet artikler i fleng, fra hjemmekontor, eller fra halvstengte sykehus og helstengte laboratorier. Mange har også snudd seg rundt og stilt kompetanse og ressurser til veie i kampen mot Covid-19 – enten som bidrag til teststasjoner eller annen klinisk virksomhet. Summen av all denne fleksibiliteten gjør at når man ser på tallene for forskningsproduksjon og årsrapportene fra forskningsgruppene står det mye bedre til enn man kunne frykte.

Forskere fra KIT har i tillegg til sin «vanlige» forskning bidradd til flere nøkkelartikler på Covid-19. Infeksjonsmiljøet har helt siden starten av pandemien vært et kraftsentrum for utprøvende behandling i Norge og internasjonalt, og professor Pål Aukrust var medforfatter på den store Solidarity-studien fra WHO som ble publisert i New England Journal of Medicine i desember. Forskere fra KIT initierte og ledet også den første studien i verden på genetiske vertsfaktorer ved Covid-19, en studie som ble publisert i New England Journal of Medicine i juni bare tre måneder etter prosjektstart. Også i arbeidet videre har forskerne våre fått en sentral rolle, med Marius Trøseid som prosjektleder for det store EU prosjektet «EU Solid-Act», som er forankret i KIT.

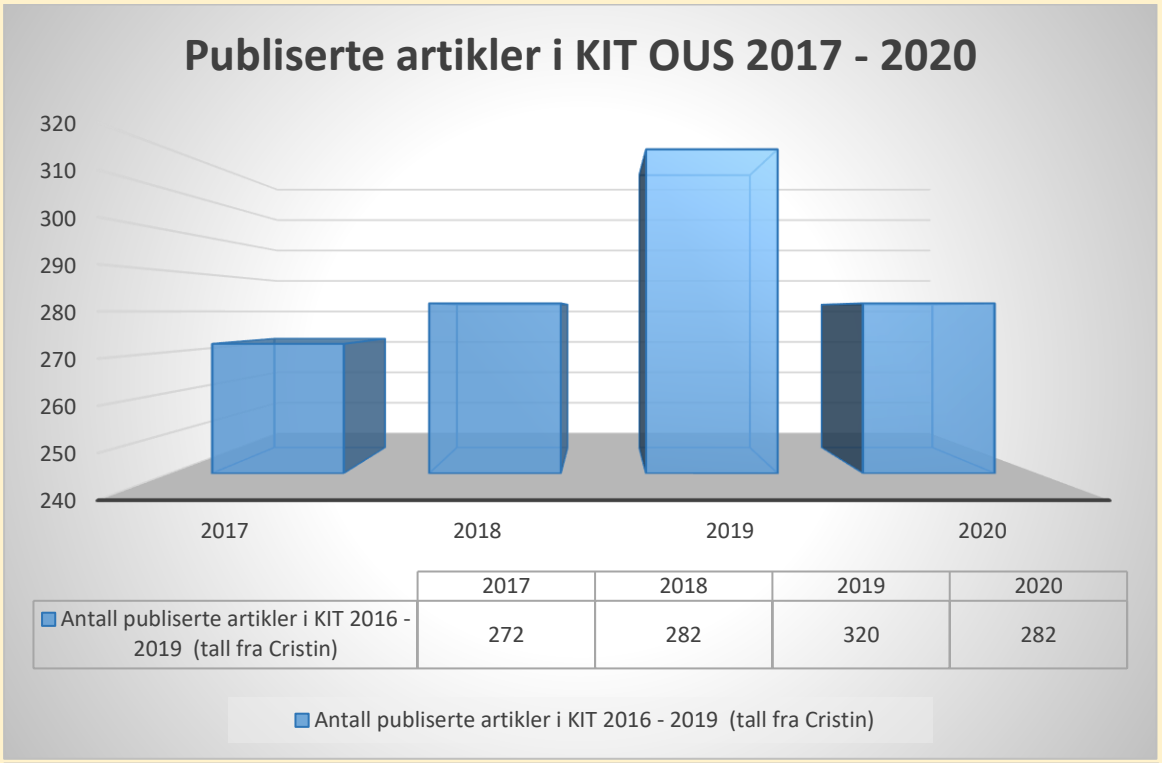
Handlingsplanen for forskning i KIT i 2020 hadde karriereutvikling for yngre forskere med nyvinningen «KIT Masterclass» som hovedsatsning. Denne ble utsatt til 2021, sammen med andre aspekter som mistet sin relevans pga. Covid-19. KIT FU opprettholdt sin regelmessige møtevirksomhet, og gjorde en viktig innsats med å koordinere de ulike restriksjonene som fulgte av Covid-19 på en slik måte at skadevirkningene på forskningen ble minst mulig. Etterhvert som restriksjonene gjennom høsten på mange måter ble en vane, fant man etterhvert frem til arbeidsformer som gjorde at aktiviteten for det meste ble gjenopptatt, både for laboratorier, biobanker og kliniske studier.

Et sentralt moment for KIT FU og klinikkledelsen er håndteringen av forskningen inn mot nye OUS. Ettersom prosessene kom i gang igjen utover høsten, har vi tatt mål oss til å ha et mest mulig aktivt engasjement inn mot tilhørende prosesser både for rokaden på Rikshospitalet, forskningsorganisering ved de ulike campus (inkl. Aker) og det som gjelder Livsvitenskapsbygget. Ad sistnevnte har prosessene skapt en konstruktiv interaksjon mellom vårt laboratorieforskningsinstitutt, Institutt for Indremedisinsk forskning, og lignende translasjonsforskningsinstitutter i barneklinikken (Institutt for Pediatrisk forskning) og hjerte-lunge klinikken (Institutt for Kirurgisk forskning og Institutt for Eksperimentell forskning). En samlokalisering av instituttene vil ha et betydelig gevinstpotensiale.

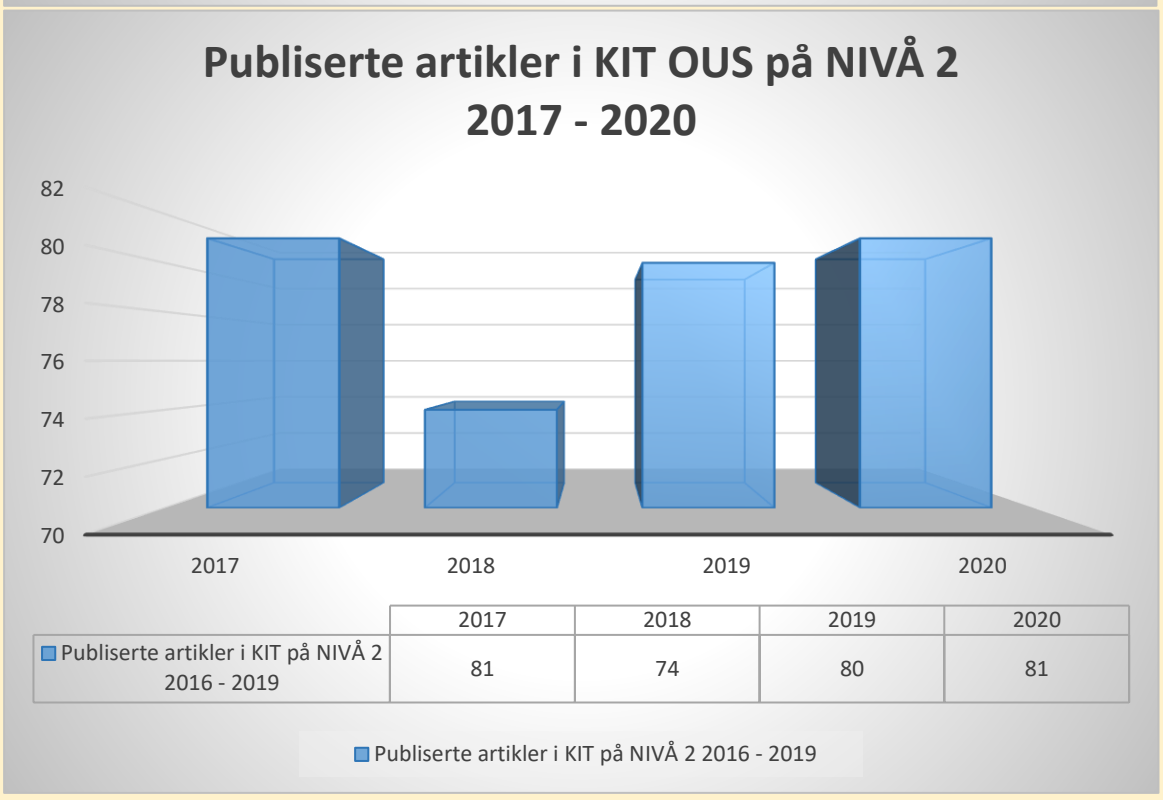
Mest av alt er kanskje dette stedet å takke alle for den ekstraordinære innsatsen gjennom et vanskelig år. Vi ser allerede fremover mot lysere og mer normale tider og jeg ser frem til å møte dere ikke bare på Zoom og Skype videre, men også ansikt-til-ansikt sånn som vi pleide å gjøre.

Tom Hemming Karlsen
Forskningsleder. KIT

Forskningsaktivitet i KIT – 2020

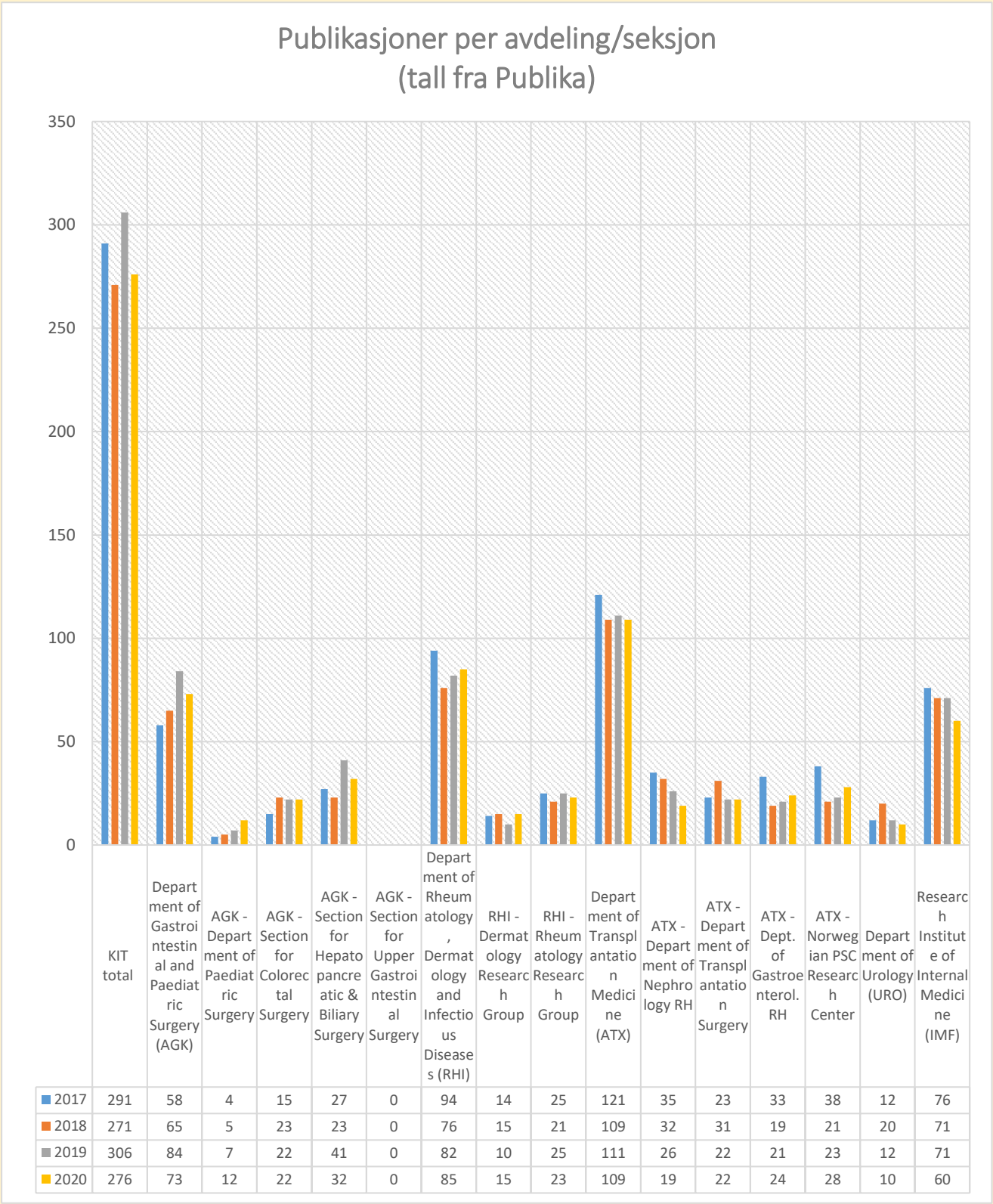


	2017	2018	2019	2020
Antall publiserte artikler i KIT 2016 - 2019 (tall fra Cristin)	272	282	320	282



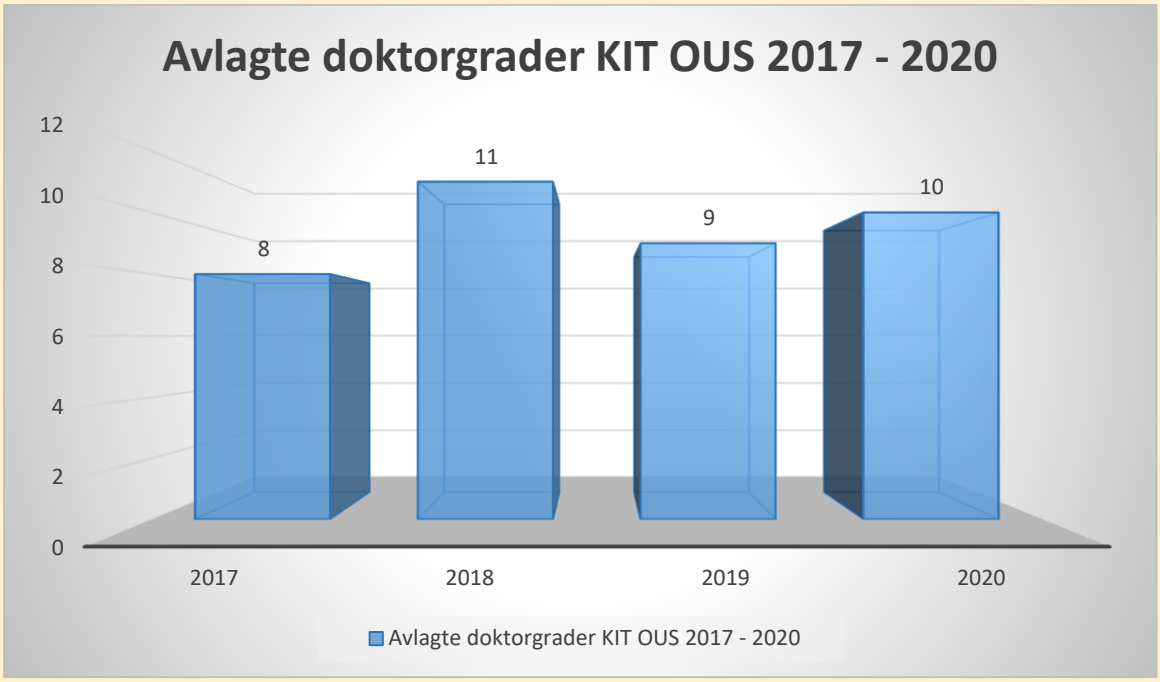
	2017	2018	2019	2020
Publiserte artikler i KIT på NIVÅ 2 2016 - 2019	81	74	80	81

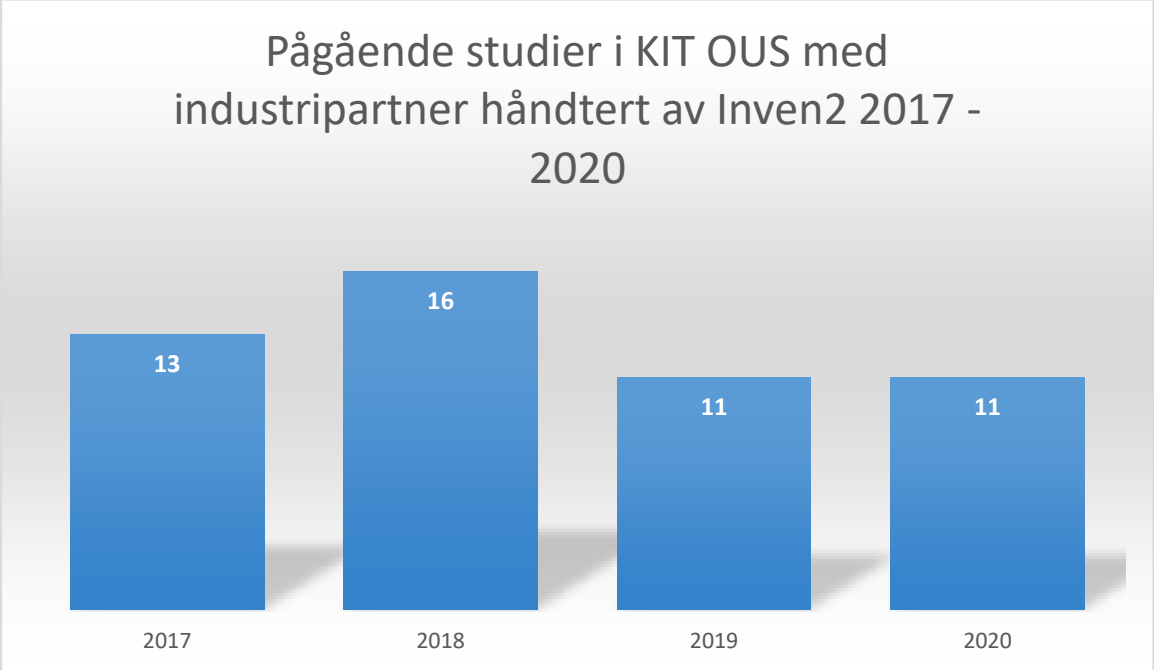
Forskningsaktivitet i KIT – 2020



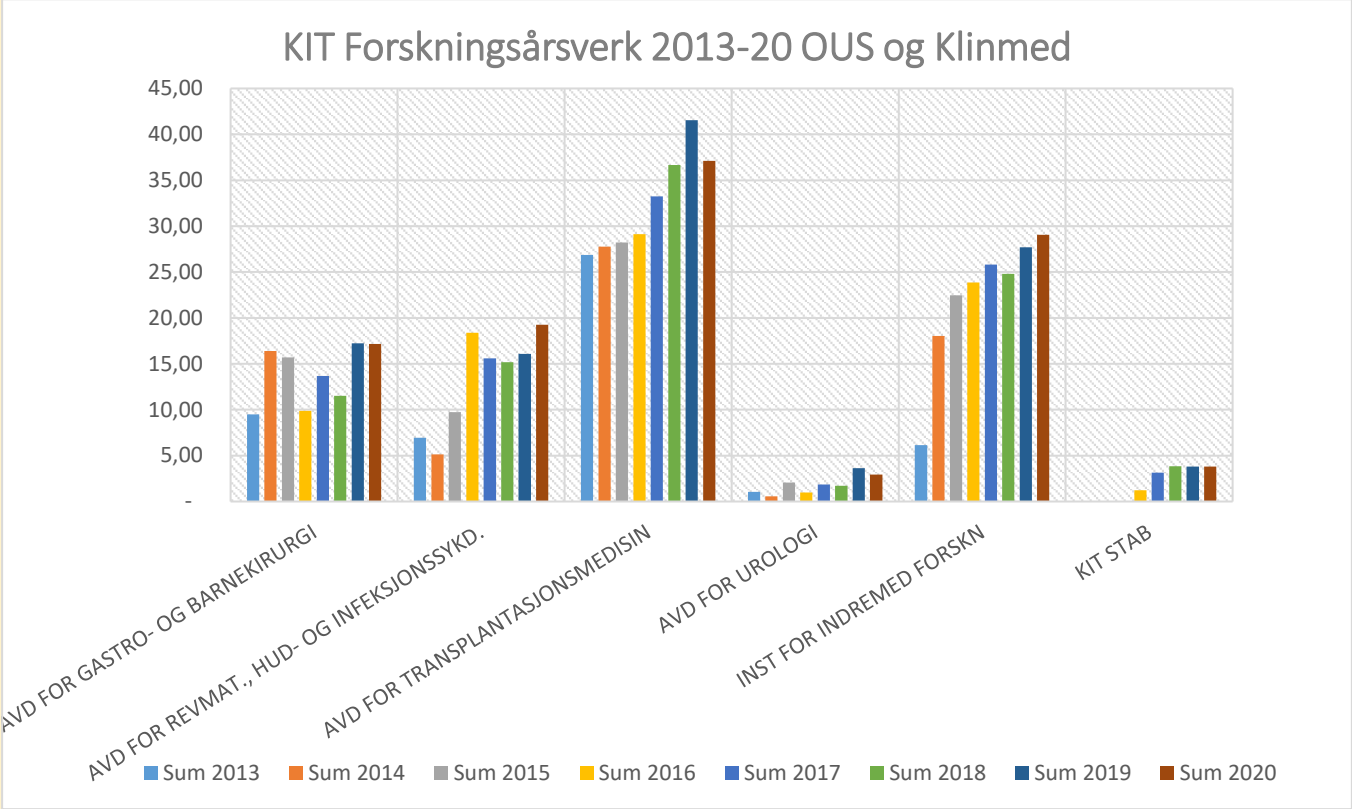
	KIT total	Department of Gastrointestinal and Paediatric Surgery (AGK)	AGK - Department of Paediatric Surgery	AGK - Section for Colorectal Surgery	AGK - Section for Hepatopancreatic & Biliary Surgery	AGK - Section for Upper Gastrointestinal Surgery	Department of Rheumatology, Dermatology and Infectious Diseases (RHI)	RHI - Dermatology Research Group	RHI - Rheumatology Research Group	Department of Transplantation Medicine (ATX)	ATX - Department of Nephrology RH	ATX - Department of Transplantation Surgery	ATX - Dept. of Gastroenterol. RH	ATX - Norwegian PSC Research Center	Department of Urology (URO)	Research Institute of Internal Medicine (IMF)
2017	291	58	4	15	27	0	94	14	25	121	35	23	33	38	12	76
2018	271	65	5	23	23	0	76	15	21	109	32	31	19	21	20	71
2019	306	84	7	22	41	0	82	10	25	111	26	22	21	23	12	71
2020	276	73	12	22	32	0	85	15	23	109	19	22	24	28	10	60

Forskningsaktivitet i KIT – 2020





Forskningsaktivitet i KIT – 2020



FORSKNINGSÅRSVERK OUS OG KLINMED 2013-17	AVD FOR GASTRO- OG BARNEKIRURGI	AVD FOR REVMAT., HUD- OG INFEKSJONSSYKD.	AVD FOR TRANSPLANTASJONSMEDISIN	AVD FOR UROLOGI	INST FOR INDREMED FORSKN	KIT STAB	TOTALT
Sum 2013	9,50	6,95	26,86	1,07	6,13	-	**50,51**
Sum 2014	16,40	5,14	27,77	0,57	18,03	-	**67,91**
Sum 2015	15,72	9,74	28,22	2,07	22,46	-	**78,20**
Sum 2016	9,89	18,40	29,14	0,97	23,85	1,24	**83,49**
Sum 2017	13,69	15,61	33,24	1,87	25,81	3,14	**93,36**
Sum 2018	11,51	15,18	36,66	1,72	24,80	3,84	**93,71**
Sum 2019	17,25	16,10	41,53	3,65	27,70	3,80	**110,03**
Sum 2020	17,18	19,27	37,13	2,95	29,06	3,80	**109,39**

Forskningsgrupper i KIT – 2020

Gruppenavn	Gruppeleder	Avdeling
Avdeling for transplantasjonsmedisin		
Eksperimentell Transplantasjon for Kreft	Svein Dueland	ATX
Klinisk transplantasjonskirurgi og eksperimentell immunologi	Einar Martin Aandahl	ATX
Klinisk PSC forskningsgruppe (NoPSC)	Trine Folseras	ATX
Nyretransplantasjonsmedisin	Anders Hartmann	ATX
Eksperimentell Celletransplantasjon	Hanne Scholz	ATX
Klinisk Effektforskning	Mette Kalager	ATX
Forskningsgruppe for pasientrapporterte resultater og helseøkonomi	Marit Helen Andersen	ATX
Nevroendokrine svulster	Espen Thiis-Evensen	ATX
Avdeling for revmatologi, hud og infeksjonssykdommer		
Hud	Jon Anders Halvorsen	RHI
Klinisk mikrobiologi og mikrobiota medisin	Marius Trøseid	RHI
Olafiaklinikken	Anne Olaug Olsen	RHI
Revmatologi	Øyvind Molberg	RHI
Institutt for indremedisinsk forskning		
Immunregulering i aterosklerose og andre kardiometabolske sykdommer	Bente Halvorsen	IMF
Inflammasjonsmarkører for hjertekar- og metabolske sykdommer	Thor Ueland	IMF
Eksperimentell leverforskning (NoPSC)	Espen Melum	IMF
Inflammasjonssykdommers genomikk og metagenomikk (NoPSC)	Johannes Hov	IMF
Immunopathogenetic mechanisms in immunodeficiency and infectious disorders	Børre Fevang	IMF
Avdeling for urologi		
Infeksjon og inflammasjon i urologi	Truls E. B. Johansen	URO
Prostatakreft	Viktor Berge	URO
Avdeling for gastro- og barnekirurgi		
Barnekirurgi	Kristin Bjørnland	AGK
Kolorektal kirurgi	Ole Helmer Sjo	AGK
Pancreaskreft	Knut Jørgen Labori	AGK
Svulster i lever og galleveier	Sheraz Yaqub	AGK
Øsafagus- og ventrikkelsykdommer	Egil Johnson	AGK

Forskningsutvalget i KIT - 2020

Forskningsutvalget i Klinikk for kirurgi, inflammasjonsmedisin og transplantasjon (KIT-FU) bestod av følgende medlemmer i 2020:

- Anders Åsberg (Avdeling for transplantasjonsmedisin)
- Kristin Bjørnland (Avdeling for gastro- og barnekirurgi)
- Gro Wiedswang (Avdeling for gastro- og barnekirurgi)
- Sheraz Yakub (Avdeling for gastro- og barnekirurgi)
- Ida Gregersen (Institutt for indremedisinsk forskning)
- Einar Marin Aandal (Avdeling for transplantasjonsmedisin)
- Viktor Berge (Avdeling for urologi)
- Hanne Scholz (Avdeling for transplantasjonsmedisin)
- Michael Bretthauer (leder av protokollutvalget, Helsam, Avdeling for helseledelse og helseøkonomi)
- Magnus Løberg (Helsam, Avdeling for helseledelse og helseøkonomi)
- Astrid Klopstad Wahl (Helsam, Avdeling for tverrfaglig helsevitenskap)
- Steinar Heldal (forskningsadministrativ leder KIT OUS)
- Kine Yttersian (administrativ koordinator KIT UiO)
- Morten Tandberg Eriksen (klinikkleder KIT)
- Tom Hemming Karlsen (forskningsleder, leder for KIT FU)

Handlingsplan for forskning i KIT for 2020

Arbeidsgruppeprosjekter2020	Arbeidsgruppeledere FU (ref. OUS HP/strategi)
Hovedprosjekt 2020: Yngre forskere og karriereutvikling i KIT Gjennomføre definerte tiltak og aktiviteter under paraplyen «KIT karriere» / «KIT Career»: • Gjennomføre KIT Masterclass (3-4 samlinger), inkludert mentorordning • Internasjonalisering: utlysning av utreisestipend • Lyse ut 5 betalte plasser på skrivekurs (Medisinsk publisering) • KIT Early Career Researchers seminar (egen komité)	1, 2b og 3b Sheraz Yakub Hanne Scholz Espen Melum Steinar Heldal
Forskningsbiobanking og registre: • Få en oppdatert status for biobanker i KIT, og bruke resultatene av kartleggingen som utgangspunkt for videre arbeid med og utvikling av biobankaktiviteten. • Legge strategi for innføring av digitale samtykker i klinikken og utlysning av midler for dette i 2021	5.1 og 5.2 og 1.3 Tom Hemming Karlsen Steinar Heldal mfl.
Støtte utvalgte miljøer • Organisatorisk støtte til 2-3 utvalgte miljøer med uforløst forskningspotensiale	3.1. Tom Hemming Karlsen Steinar Heldal
Strategi for translasjonsforskning på nye Gaustad campus • Spille inn til- og følge opp sentral prosess i OUS for utvikling av strategi for translasjonsforskning på nye Gaustad i OUS (videreført fra 2019)	1.3, 2.1, 3.1.og 3.2. Ida Gregersen (på vegne av arbeidsgruppe ved IMF)
Helsefaglig forskning i KIT • Etablere rutine for oppfølgingssamtaler med helsefaglige PhDs og postdocs sammen med nærmeste leder, med mål om at forskningskompetansen utnyttes når kandidaten returnerer til klinisk arbeid • Gjennomføre en helsekompetansekartleggingsdag i KIT (Health Literacy day), for å undersøke helsekompetansen til utvalgte grupper av klinikkens pasientpopulasjon og for å markedsføre helsefaglig forskning og rekruttere nye, aktuelle helsefagforskere.	1.4 og 3.3. Astrid Klopstad Wahl Marit Helen Andersen Steinar Heldal
Innovasjon og flere kliniske studier • Innovasjon skal være tema på en av forskningsgruppeledersamlingene i 2020 • Følge opp pilotprosjektet med «Strategisk protokollutvalg for kliniske studier i KIT»	2.1. Tom Hemming Karlsen Steinar Heldal
Løpende aktiviteter og samarbeidsmøter	
• Samarbeidsmøte i 2020: Patologisk avdeling • KIT og OsloMet: årlig felles helseforskningsseminar • Nettverk for biobankingeniører, studie- og forskningssykepleiere i KIT • Økt innmelding MTU forskning • Søknadspoliklinikker	Tom/Steinar Marit H.A./Astrid K.W. Steinar Steinar Steinar

Department of Gastrointestinal and Children Surgery

(AGK)

- Barnekirurgi/ Pediatric Surgery
- Kolorektal kirurgi/ Colorectal Surgery
- Pancreaskreft/ Pancreatic Cancer
- Svulster i lever og galleveier/ Hepatobiliary malignacies
- Øsafagus- og ventrikkelsykdommer/ Diseases of esophagus and stomach

Forskningsgruppe: Barnekirurgi

Research group: Pediatric surgery

Avdeling: AGK

Gruppeleder: Kristin Bjørnland, kristin.bjornland@medisin.uio.no

Om gruppen: Hovedfokus er å studere somatiske og psykososiale forhold hos pasienter som er operert for gastrointestinale og urogenitale medfødte misdannelser, samt solide svulster utenfor CNS. Pasientrapporterte data vektlegges. Forskningsprosjektene har fokus på tverrfaglighet, og gruppen har et bredt forskningssamarbeid både nasjonalt og internasjonalt. Gruppen er også involvert i translasjonsforskning i et prosjekt hvor man studerer immunologiske faktorers betydning ved Hirschpsrung sykdom og utvikling av enterokolitt hos Hirschsprung pasienter.

About the group: The main focus is to study somatic and psychosocial long-term outcomes in patients operated for congenital gastrointestinal and urogenital conditions and how surgical techniques and follow-up protocols influence these parameters. Patient reported outcomes are important outcome measures. In all projects there is a strong focus on interdisciplinary collaboration, and the group collaborates both nationally and internationally. Translational research includes studies on the immune system in the bowel from neonates and small children with Hirschsprung disease with a particular focus on predictors for enterocolitis in Hirschpsrung.

Hovedmedlemmer / Main members:

NAME	POSITION/TITLE/ROLE	EMPLOYER / AFFILIATION	E-MAIL
Aksnes, Gunnar	Consultant, PhD, head of department	OUS	Gunnar.aksnes@ous-hf.no
Arntzen, Trine	Medical student research fellow	UiO	Trine.arntzen@studmed.uio.no
Bjørnland, Kristin	Consultant, Professor, Group leader	OUS, UiO	Kristin.bjornland@medisin.uio.no
Emblem, Ragnhild	Professor emerita	UiO	Ragnhild.emblem@medisin.uio.no
Engebretsen, Anders	Surgical registrar, PhD	OUS	anheng@ous-hf.no
Ertresvåg, Kjetil	Consultant	OUS	uxkjrt@ous-hf.no
Fosby, Marianne	Consultant	OUS	martei@ous-hf.no
Fyhn, Thomas	Clinical research fellow, MD	UiO	t.j.fyhn@medisin.uio.no
Hoel, Anders	PhD student	OUS	a.t.hoel@ous-hf.no
Johannessen, Hanna	Medical student	UiO	Hajoh3@ous-hf.no
Karlsen, Remi	Medical student research fellow	UiO	r.a.karlsen@studmed.uio.no
Kvello, Morten	PhD student /registrar	Uio	mkvello@gmail.com
Lundar, Live	Consultant/PhD Student, MD	UiO	Live.lundar@medisin.uio.no
Mikkelsen, Audun	Consultant/PhD Student, MD	UiO	Audun.mikkelsen@medisin.uio.no
Møinichen, Inger	Physiotherapist	OUS	umoinich@ous-hf.no
Røkkum, Henrik	Registrar	OUS	B26425@ous-hf.no
Skari, Hans	Consultant, PhD	OUS	Hans.skari@ous-hf.no
Stensrud, Kjetil	Consultant, PhD	OUS	kstensru@ous-hf.no
Urdal, Andreas	Consultant	OUS	andurd@ous-hf.no

Assosierte medlemmer / Associated members:

NAME	POSITION/TITEL/ROLE	EMPLOYER / AFFILIATION	E-MAIL
Andersen, Marit	Professor	OUS	Manderse@ous-hf.no
Austrheim, Astri	Stoma nurse	OUS	Astrid.ingerborg.austrheim@ous-hf.no
Birketvedt, Kirsti	Nutritionist	OUS	kbirkevt@ous-hf.no
Helene Gjone	Consultant child psychiatrist, PhD	OUS	hegjon@ous-hf.no
Diseth, Trond	Consultant, Professor	OUS, UiO	tdiseth@ous-hf.no
Gulseth, Eirik	Nurse, PhD student	OUS	eirgul@ous-hf.no
Haugen, Guttorm	Professor, gynecologist	OUS, UiO	ghaugen@ous-hf.no
Jahnsen, Frode	Professor, pathologist	OUS, UiO	f.l.jahnsen@medisin.uio.no
Knatten, Charlotte	Consultant pediatrician, PhD	OUS	charlotte@knatten.org
Øresland, Tom	Professor emeritus, colorectal surgeon	Ahus	Tom.oresland@medisin.uio.no

Aktivitet i 2020:

Internasjonale prosjekter

Vi deltar i flere europeiske studier om etablering av retningslinjer for behandling av medfødte misdannelser. Vi leder en europeisk studie om etablering av felles rapporteringsskjema for resultat etter Hirschsprung behandling og er med i multinasjonal studie om fertilitet hos kvinner med Hirschpsrung. Vi deltar i internasjonalt forskningssamarbeid om betydning av radikal kirurgi for overlevelse og morbiditet ved neuroblastom og residiv og morbiditet ved sacrococcyggeale teratomer. I et nordisk forskningssamarbeid har vi prosjekter om langtidsresultater ved svært sjeldne tilstander som persisterende kloakk, choledochuscyster og kort-tarm syndrom. Vi er også med i en europeisk studie om Covid og appendicitt.

Nasjonale prosjekter

Vi har forskningssamarbeid med barnekirurgisk avdeling på St Olavs Hospital om langtidsresultater etter operasjon for anorektale misdannelser. Sammen med Bekkensenteret på AHus har vi studier om transisjon av pasienter med medfødte anorektale tilstander. Vi deltar også i en nasjonal studie om nekrotiserende enterokolitt hos premature.

Nye medlemmer/tildelinger

Hanna Johannessen nytt medlem. Tildeling fra Helse SørØst til doktorgradsprosjekt for Hanna. 20 000 NOK fra Karla og Arne Oddmars legat til manometri, og 100 000 NOK fra Barnestiftelsen til prosjektet om immunologi og Hirschsprung.

Pågående prosjekter

Fem doktorgradsprosjekter; Thomas Fyhn: Sammenlikning mellom laparoskopisk og åpen fundoplikasjon; Morten Kvello: Kirurgisk behandling av ernæringsvansker og gastroøsofageal refluks – sammenlikning av kirurgiske metoder, Audun Mikkelsen: Langtidsresultater etter operasjon for øsofagusatresi; Live Lundar: Uretraklaffer hos barn; Anders Telle Hoel: Anorektale misdannelser – overgang fra ungdom til voksne. To forskerlinjestudent prosjekter; Remi Andre Karslen: Resultater etter operasjon for Hirschpsrung sykdom, Trine Arntzen: Prenatal diagnostikk ved øsofagusatresi. For øvrig er flere av gruppens medlemmer involvert i diverse kvalitetsstudier som omhandler de pasientkategorier barnekirurgisk avdeling behandler. Det er også medisinstudenter knyttet til noen av prosjektene,

Publikasjoner

Gruppens medlemmer var med på 23 publikasjoner i 2020; ti publikasjoner var internasjonale studier og en av studiene hadde norsk førsteforfatter; seks publikasjoner var publisert i norsk tidsskrift. I de 23 publikasjonene var gruppens medlemmer første eller sisteforfatter på 12 publikasjoner.

Research group: Colorectal Surgery

Department: Gastrointestinal surgery and pediatric surgerey

Group leader: Ole Helmer Sjo

About the group:

Short description of research profile / specific aims:
We are mainly performing translational research on colorectal cancer in a multidisciplinary team with dedicated researchers from clinical medicine and biology covering many fields - colorectal surgery, hepatobiliary surgery, oncology, radiology, pathology and molecular biology. We have excellent cooperation with The Department of Molecular oncology and the The Micrometastases Laboratory at The Institute of Cancer research, OUS – Radium hospital

The specific aims are to develop new molecular diagnostic, prognostic, predictive and monitoring biomarkers.

In order to reach our goals we have collected and are continuously collecting (high quality procedure) fresh tumour tissue, formalin fixed tissue, normal tissue and blood/serum to large biobanks, together with high quality, comprehensive clinical datasets for colorectal primary cancer, colorectal liver metastases, blood and bone marrow from population based, unselected, large series of patients. In lab genomic, transcriptomic, proteomic investigations

We are performing drug sensitivity testing on patients' own cancer cells sampled from resected colorectal cancer liver metastases.
We are aiming at establishing even stronger national and international collaboration
We are also running several clinical research projects together with geriatricians on the prevalence of complications in elderly crc patients, and the aim is to establish geriatric assessment tools to estimate the risk of - and to establish methods to prevent - such complications

We are running other smaller projects on colorectal and anal diseases and we are partners in a project on health economy related to treatment of colorectal cancer.
We have participated in international multicenter studies on colorectal cancer run by Eur Soc of coloproctology and geriatric assessment for risk prediction (GoSafe study)

Group members (active 2020)

NAME	POSITION/TITLE/ROLE	EMPLOYER/ AFFILIATIO N	E-MAIL
Arild Nesbakken	Professor II / Senior consultant	OUS and UiO	arild.nesbakken@medisin.uio.no
Ole Helmer Sjo	MD PhD / Senior consultant	OUS	ole.sjo@ous-hf.no
Tuva Høst Brunsell	MD PhD research fellow	UiO	t.h.brunsell@medisin.uio.no
Morten Tandberg-Eriksen	Ass Professor /Senior consultant	OUS and UiO	sbermo@ous-hf.no
Tom-Andreas Wik	Senior consultant	OUS	uxwikt@ous-hf.no
Tom Glomsaker	Senior consultant	OUS	tomglo@ous-hf.no
Ingeborg F. Backe	Study nurse / Master nursing	OUS	ingbac@ous-hf.no
Gro Wiedswang	Post doc / Senior consultant	OUS	uxgrie@ous.hf.no
Lars Thomas Seeberg	Senior consulting	Vestfold HT	lts@gmail.com

Associated members (active 2020):

NAME	POSITION/TITEL/ROLE	EMPLOYER/ AFFILIATION	E-MAIL
Egil Johnson	Professor II / senior consultant	OUS and UiO	
Maria Magdalena Kowalewska-Hibyeli	Study nurse	OUS	
Tom Mala	MD PhD / senior consultant	OUS	
Ragnhild A Lothe	Professor	OUS and UiO	
Guro Elisabeth Lind	Ass Professor	OUS and UiO	
Anita Sveen	Ass Professor	OUS and UiO	
Aud Svindland	Professor emeritus	UiO	
Marianne G Guren	MD PhD / senior consultant	OUS	
Tormod K Guren	MD PhD / senior consultant	OUS	
Siri Rostoft	Ass Prof / senior consultant	OUS and UiO	

Activity in 2020:

We have arranged one meeting in the group as a whole and several meetings in the collaborative group led by Arild Nesbakken / Ragnhild A Lothe (KG Jebsen centre) studying tumor heterogeneity, biomarkers, and drug sensitivity testing of living, patient derived cancer cells from colorectal cancer liver metastases

Website: www.colorectal.no

- Gro Wiedswang and Bjørn Naume's group have meetings with participants in their project.
- Ole H Sjo is leading the LapConor project, an education program for young surgeons in laparoscopic colorectal surgery, planning research projects as part of that program
- Arild Nesbakken arranges a two-day course on biomedical research for young surgeons in the department twice a year.

Some highlights of the activity:

- Consecutive inclusion with biobanking and registration of a comprehensive clinical dataset for all patients operated in our hospital for primary colorectal cancer (n= 3800) and for liver metastases from colorectal cancer (n=800)
- Collecting liquid biopsies to monitor relapse in curatively operated colorectal cancer patients
- Participate in Bioman – a national multicenter study on tissue micro arrays of colorectal cancers (n=5000 planned) using formalin fixed tumor tissue from diagnostic biobanks and clinical data from The Norwegian Cancer registry
- Grow living tumor cells from liver metastases in organoids and perform drug sensitivity testing (typically to some 50 different chemotherapeutic agents and targeted drugs), at present some 100 patients included. Clinical implementation is in the pipeline
- Register all patients who undergo local excision for early rectal cancer (transanal endoscopic surgery)
- Run several clinical quality registries
- Comprehensive geriatric assessment for risk prediction in frail patients

Publications 2020 : 16 (A Nesbakken 10, Gro Wiedswang 5, Tom Glomsaker 1)
PhD finished, disputation 2020:

- In our department: 1 (Tuva Høst Brunsell)
- Cooperating dept: 1 (Jørgen Smeby, oncology)

Publications

A. Nesbakken

1. Berg KCG, Brunsell TH, Sveen A, Alagaratnam S, Bjørnslett M, Hektoen M, Brudvik KW, Røsok BI, Bjørnbeth BA, Nesbakken A, Lothe RA (2020)
   Genomic and prognostic heterogeneity among RAS/BRAF^{V600E} /TP53 co-mutated resectable colorectal liver metastases. Mol Oncol 2020 Dec Online ahead of print PMID 33325154

2. Bergsland CH, Bruun J, Guren MG, Svindland A, Bjørnslett M, Smeby J, Hektoen M, Kolberg M, Domingo E, Pellinen T, Tomlinson I, Kerr D, Church DN, Nesbakken A, Sveen A, Lothe RA (2020)
   Prediction of relapse-free survival according to adjuvant chemotherapy and regulator of chromosome condensation 2 (RCC2) expression in colorectal cancer ESMO Open, 2020; 5 (6), e001040

3. Smeby J, Kryeziu K, Berg KCG, Eilertsen IA, Eide PW, Johannessen B, Guren MG, Nesbakken A, Bruun J, Lothe RA, Sveen A (2020)
   Molecular correlates of sensitivity to PARP inhibition beyond homologous recombination deficiency in pre-clinical models of colorectal cancer point to wild-type TP53 activity
   EBioMedicine, 2020; 59, 102923

4. Bruun J, Kryeziu K, Eide PW, Moosavi SH, Eilertsen IA, Langerud J, Røsok B, Totland MZ, Brunsell TH, Pellinen T, Saarela J, Bergsland CH, Palmer HG, Brudvik KW, Guren T, Dienstmann R, Guren MG, Nesbakken A, Bjørnbeth BA, Sveen A, Lothe RA (2020)
Patient-Derived Organoids from Multiple Colorectal Cancer Liver Metastases Reveal Moderate Intra-patient Pharmacotranscriptomic Heterogeneity
Clin Cancer Res, 2020; 26 (15), 4107-4119

5. Skrede OJ, De Raedt S, Kleppe A, Hveem TS, Liestøl K, Maddison J, Askautrud HA, Pradhan M, Nesheim JA, Albregtsen F, Farstad IN, Domingo E, Church DN, Nesbakken A, Shepherd NA, Tomlinson I, Kerr R, Novelli M, Kerr DJ, Danielsen HE (2020)
Deep learning for prediction of colorectal cancer outcome: a discovery and validation study
Lancet, 2020; 395 (10221), 350-360

6. 2015 European Society of Coloproctology Collaborating Group. Predictors for Anastomotic Leak, Postoperative Complications, and Mortality After Right Colectomy for Cancer: Results From an International Snapshot Audit.
.Dis Colon Rectum. 2020 May;63(5)

7. Brunsell TH, Sveen A, Bjørnbeth BA, Røsok BI, Danielsen SA, Brudvik KW, Berg KCG, Johannessen B, Cengija V, Abildgaard A, Guren MG, Nesbakken A, Lothe RA High Concordance and Negative Prognostic Impact of RAS/BRAF/PIK3CA Mutations in Multiple Resected Colorectal Liver Metastases.
.Clin Colorectal Cancer. 2020 Mar;19(1):e26-e47

8. Joranger P, Nesbakken A, Sorbye H, Hoff G, Oshaug A, Aas E. Survival and costs of colorectal cancer treatment and effects of changing treatment strategies: a model approach. Eur J Health Econ. 2020 Apr;21(3):321-334

9. Eilertsen IA, Moosavi SH, Strømme JM, Nesbakken A, Johannessen B, Lothe RA, Sveen A Technical differences between sequencing and microarray platforms impact transcriptomic subtyping of colorectal cancer. Cancer Lett. 2020 Jan 28;469:246-255.

10. Lopes N, Bergsland CH, Bjørnslett M, Pellinen T, Svindland A, Nesbakken A, Almeida R, Lothe RA, David L, Bruun J Digital image analysis of multiplex fluorescence IHC in colorectal cancer recognizes the prognostic value of CDX2 and its negative correlation with SOX2.
.Lab Invest. 2020 Jan;100(1):120-134

G. Wiedswang
11. Helland T, Naume B, Hustad S, Bifulco E, Kvaløy JT, Saetersdal AB, Synnestvedt M, Lende TH, Gilje B, Mjaaland I, Weyde K, Blix ES, Wiedswang G, Borgen E, Hertz

DL, Janssen EAM, Mellgren G, Søiland H (2020)
Low Z-4OHtam concentrations are associated with adverse clinical outcome among early stage premenopausal breast cancer patients treated with adjuvant tamoxifen
Mol Oncol

12. Hugenschmidt H, Labori KJ, Brunborg C, Verbeke CS, Seeberg LT, Bendigtsen Schirmer C, Renolen A, Borgen E, Naume B, Wiedswang G (2020)
Cytokeratin-positive cells in the bone marrow from patients with pancreatic, periampullary malignancy and benign pancreatic disease show no prognostic information
BMC Cancer, 20 (1), 1107

13. Bärebring L, Kværner AS, Skotnes M, Henriksen HB, Skjetne AJ, Henriksen C, Ræder H, Paur I, Bøhn SK, Wiedswang G, Smeland S, Blomhoff R (2020)
Use of bioelectrical impedance analysis to monitor changes in fat-free mass during recovery from colorectal cancer- a validation study
Clin Nutr ESPEN, 40, 201-207

14. Kværner AS, Harnæs H, Alavi DH, Bärebring L, Henriksen HB, Guren MG, Lauritzen PM, Eggesbø HB, Wiedswang G, Smeland S, Blomhoff R (2020)
Should calculation of chemotherapy dosage for bowel cancer be based on body composition?
Tidsskr Nor Laegeforen, 140 (8)

15. Hugenschmidt H, Labori KJ, Brunborg C, Verbeke CS, Seeberg LT, Schirmer CB, Renolen A, Borgen EF, Naume B, Wiedswang G (2020)
Circulating Tumor Cells are an Independent Predictor of Shorter Survival in Patients Undergoing Resection for Pancreatic and Periampullary Adenocarcinoma
Ann Surg, 271 (3), 549-558

T. Glomsaker

16. Tønnesen CJ, Young J, Glomsaker T, Mala T, Løberg M, Bretthauer M, Refsum E, Aabakken L (2020). Laparoscopy-assisted versus balloon enteroscopy-assisted ERCP after Roux-en-Y gastric bypass Endoscopy, 52 (8), 654-661

Forskningsgruppe: Pancreaskreft

Research group: Pancreatic cancer

Avdeling: Department of Hepato-Pancreato-Biliary Surgery, Division of Surgery, Inflammatory Diseases and Transplantation

Gruppeleder: Knut Jørgen Labori

Om gruppen:

Forskningsgruppen arbeider med klinisk onkologisk forskning ved pancreaskreft, både innen kirurgisk og medikamentell behandling. En betydelig del av forskningen er translasjonsforskning. Gruppens medlemmer arbeider innen flere fagfelt som kirurgi, onkologi, gastroenterologi, patologi og molekylærbiologi. Hovedmålet er å bedre diagnostikk og behandling og derav prognosen for pasienter med pancreaskreft. Translasjonsforskningen baserer seg på tumorvev og blodprøver fra pasienter som behandles ved OUS og arbeider med å kartlegge biologiske prosesser og identifisere biomarkører ved pancreaskreft. Det er utstrakt nordisk og internasjonalt samarbeid innen flere kliniske og translasjonsprosjekter. Forskningsgruppen har etablert en biobank for samling av tumorvev og blodprøver med tilhørende database og et klinisk register for pasienter som blir operert for pancreakreft ved OUS.

About the group:

The research group is an interdisciplinary forum that perform clinical trials and translational research on pancreatic cancer and pancreatic cysts. The research group studies the importance of environmental and genetic factors in cancer development, prognostic and predictive factors, early diagnosis, and the efficacy of surgical- oncological- and symptomatic treatment. Patients with pancreatic tumors treated at Oslo University Hospital is requested consent for storage of biological material and clinical data for use in research. The research group has established a clinical data registry and a biobank with an associated database. This ensures a systematic, prospective registration of patients with pancreatic cancer who are being treated at the hospital. Clinical registry contains relevant clinical and histopathological data from routine diagnostics. Biobank database contains the results of clinical and molecular research.

Hovedmedlemmer / Main members:

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Aktivitet i 2020 / Activity in 2020:

Projects:

Thematic pancreatic tumour project: Oslo University Hospital has established a multidisciplinary research program for patients undergoing investigation for a solid or cystic pancreatic or periampullary neoplasm. Through this project the research group has established a clinical data registry and a biobank with an associated database. Patients undergoing surgical resection are asked for written informed consent to approve sampling of blood and tumour tissue for biobanking and to collect clinical data during hospital admissions or outpatient clinic visits.

Clinical trials:

NorPACT-1: Scandinavian multicentre un-blinded phase II randomized controlled trial. Patients with resectable adenocarcinoma of the pancreatic head are randomized to receive either surgery first (control) or neoadjuvant chemotherapy (=intervention) with four cycles FOLFIRINOX followed by resection. Ongoing from March 2017. As of 31 th December 2020, 121 (of 140) patients have been included. PI: professor Knut Jørgen Labori.

NorPACT-2: NorPACT-2 is a single arm prospective study of borderline and locally advanced pancreatic cancer, in which eligible patients undergo neoadjuvant treatment possibly followed by surgical exploration and resection. Ongoing from January 2018-2020. AccrUAl stopped 31 th December 2020, 250 patients have been included. PI: professor Knut Jørgen Labori

Bolt-on to NorPACT 1 and 2 is a translational research program based on tumour tissue and plasma (PIs: professor Elin Kure and professor Caroline Verbeke) that aims at identifying factors that are predictive of response to neoadjuvant therapy, the risk of distant cancer spread, and patient outcome.

DIPLOMA trial: Pan-European, randomized controlled, multicenter, patient-blinded non-inferiority trial comparing minimally invasive distal pancreatectomy to open distal pancreatectomy for pancreatic cancer. Patients with resectable adenocarcinoma of the pancreatic body or tail are randomized to undergo either minimally invasive or open distal pancreatectomy. Ongoing from December 2018. Local-PI: professor Bjørn Edwin

Thesis defense:

1. Kim Ånonsen, MD: "Cystic pancreatic lesions - An observational study of patient selection and outcome after surgery ". Main supervisor: Associate professor Truls Hauge. May 2020
2. Bart Baekelandt, MD: "Management of pancreatic and periampullary tumors – consequences for survival and patient reported outcome". Main supervisor: professor Trond Buanes. January 2021
3. Harald Hugenschmidt, MD: "The impact of micrometastasis in presumed resectable pancreatic and periampullary cancers. Circulating tumour cells in the peripheral blood and disseminated tumour cells in the bone marrow as potential tools for risk-assesement before surgery". Main supervisor: Gro Wiedswang. Scheduled May 2021

Ongoing PhD projects:

1. Inger Marie Bowitz Lothe, MD: "Molecular profiling of precursor lesions and tumours from the pancreatic head". Main supervisor: professor Elin Kure.
2. Stina M. Stålberg, MD: "Plasma exosomes and their cargo in relation to tumor profiles in pancreatic and colorectal cancers". Main supervisor: professor Elin Kure.
3. Ingvild Farnes, MD: "New treatment approaches for resectable, recurrent and locally advanced pancreatic cancer". Main supervisor: professor Knut Jørgen Labori.
4. Ammar Khan, MD: "Complex vascular procedures during pancreatic and hepatobiliary surgery". Main supervisor: professor Knut Jørgen Labori.

Forskningsgruppe: Svulster i lever og galleveier

Research group: Hepatobiliary malignancies

Avdeling: Avd for gastro- og barnekirurgi, Seksjon for HPB kirurgi

Gruppeleder: Sheraz Yaqub

Om gruppen:

Gruppens primære mål er å tilby pasienter med kreft i lever og galleveier den fremste behandlingen og dermed inkludere dem i både kliniske og translasjons forskningsprosjekter. Gruppen har også et stort klinisk register som brukes for å evaluere/forbedre kvaliteten på behandlingen vi tilbyr.

About the group:

The main aim of the research group is to conduct clinical and translational studies for the treatment of hepatobiliary malignancies. The group has also register-based studies to evaluate and improve patient treatment.

Hovedmedlemmer / Main members:

NAME	POSITION/TITLE/ROLE	EMPLOYER/AFFILIATION	E-MAIL
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Aktivitet i 2020 / Activity in 2020:
The research group has regularly meetings every month where progress of on-going projects as well as new projects are presented. Both main and associated members are invited. Due to the on-going pandemic, most of the meetings were held online (Zoom).

On-going projects:

- The ASAC study, Scandinavian multicentre, placebo-controlled, randomized trial, initiated by our group, investigating the role of aspirin as adjuvant after surgery for colorectal liver metastases, is still recruiting patients and has now 300 of 800 patients included (www.asac.no). The trial is funded by Research Council of Norway, Norwegian Cancer Society, and KLINBEFORSK.
- EXCALIBUR study; single centre, un-blinded, three-armed randomized trial for patients with high load of colorectal liver metastases, treated with 1)liver transplantation 2)liver resection 3)hepatic artery infusion of chemotherapy. The trial is approved by the Ethical committee and Norwegian Medicinal Agency and will to be initiated in 2021 (www.excaliburstudy.com).
- Precision Medicine in Early Diagnostics and Therapy of Biliary Tract Cancer; is a collaborative project between several groups, led by Sheraz Yaqub, started December 2020.
- TESLA trial: Liver Transplantation for Non-Resectable Intrahepatic Cholangiocarcinoma: a prospective exploratory trial; this is a collaborative study between several groups at OUH-KIT treating patients with cholangiocarcinoma
- CAMINO study: Investigate the value of MRI in assessing CRC liver mets compared to CT scan, and if MRI affects the surgical decision.

Planned projects:

- Randomized liver tumour ablation study, led by Åsmund Fretland, investigating the role of local ablation of CRC liver mets vs surgical resection; initiating in 2021.
- The EVIDENT trial (Ex vivo drug sensitivity testing of metastatic colorectal cancer) is a prospective, single-arm phase II study of metastatic CRC, in which patients will receive standard or experimental anticancer agents guided by a combination of molecular markers and PDO drug sensitivities led by Prof Ragnhild Lothe.
- TESLA-2 trial: Liver transplantation for non-resectable perihilar cholangiocarcinoma: a prospective exploratory trial; initiating in 2021.

Forskningsgruppe: Øsofagus- og ventrikkelsykdommer

Research group: Diseases of esophagus and stomach

Avdeling: Avd. for gastro- og barnekirurgi, OUS, Ullevål

Gruppeleder: Egil Johnson

Om gruppen:

Hensikten med gruppen er:

1. Å evaluere (kvalitetssikre) eksisterende kirurgisk behandling av sykdommer i øsofagus og ventrikkel, så vel som brokk med siktemål å definere forbedringsområder (f. eks. robot-assistert kirurgi/nye typer nettplastikker).
2. Å delta i forskningstudier innen fagfeltet, både klinisk og molekylært for å forbedre behandlingen (f. eks biomarkører for tidlig deteksjon av kreft/type neoadjuvant/perioperativ behandling/type definitiv onkologisk behandling).
3. Arbeide for tettere nasjonalt samarbeid innen forskning på kreft i spiserør og magesekk

About the group:

1. To evaluate by quality assurance existing surgical treatment of diseases of esophagus and stomach, as well as hernia, in order to improve treatment (e.g. robotic assisted surgery/new mesh techniques).
2. To participate in research studies within this field, both clinically and by molecularly in order to improve treatment (e.g. biomarkers for early detection of cancer/type of neoadjuvant/perioperative traeatment/type of definitive oncologic treatment)
3. Work for a closer national cooperation within research on esophageal and gastric cancer

Hovedmedlemmer / Main members:

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Egil Johnson	Professor II / Senior consultant/leader	OUS and UiO	Egil.johnson@ous-hf.no
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Truls Hauge	Associate professor/Senior consultant	OUS	uxhtru@ous-hf-no

Aktivitet i 2020 / Activity in 2020:

Projects:

Continual monitoring of complications and survival (quality assurance) following resection for esophageal- and gastric cancer

Continuous biobanking of blood samples and tumor tissue ((esophageal cancer (n= 450), gastric cancer (n=290)) to a biobank since 2013 for research purposes. Analyses of biobank material have been ongoing since 2019.

Studies on esophageal cancer on biomarkers /local treatment of dysplasia and early cancer/total minimally invasive resection for more advanced cancer are ongoing (PhD study)

A pilot project on to studying microcirculatory changes in the gastric tube before, under and after surgery for esophageal cancer has been completed. Results are planned for publication.

The INNOVATION study. European randomised multicenter study, in which patients with HER-2 positive gastric cancer were randomized in three arms for i) chemotherapy (perioperative FLOTx4x2 eller CiFU/CiXel), ii) chemotherapy with trastuzumab or iii) chemotherapy with trastuzumab+pertuzumab. End point is overall survival. EORTC study. Inclusion is still ongoing.

INTENSE study. Effect of perioperative use of chemotherapy (FOLFIXFLIRIx4x2) in patients with resectable gastric and gastroesophageal junction adenocarcinoma. Ongoing inclusion.

NEEDS study. Neoadjuvant chemoradiotherapy for esophageal squamous cell carcinoma versus definitive chemoradiotherapy with salvage surgery as needed. Multicenter study started in 2021.

VESTIGE study. Postoperative Immunotherapy (nivolumab plus ipilimumab) vs Standard Chemotherapy for Gastric Cancer stage Ib-IVb, including esophagogastric junction adenocarcinoma, with high risk for recurrence (defined by ypN1-3 and/or R1 status) (VESTIGE). Venter på REK/SLV godkjenning.

The upper GI International Robotic Association (UGIRA) for contribution of patients to the International Registry for Robot-Assisted Minimally Gastrectomy (RAMIG) for gastric cancer. Dr. C. de Jongh, University Medical Center, Utrecht, is project leader. Professor Tom Mala is responsible for recruitment of patients to this registry at OUS from 2021..

The kiNETiC – a Register based Randomised Controlled Trial- Ng-tube post–EsophagecTomy Complications. A Scandinavian multicenter study. Three out of four University clinics in Norway will participate. Awaiting decision from the ethical committee. Associate prof. Jacob Hedberg, Department of Surgical Sciences, Uppsala is responsible. Prof. Tom Mala is responsible at OUS.

Keynote 061 (randomised study with palliative chemotherapi in 2. line for gastric cancer; standard chemotherapy vs. MK3475. MSD study. Inclusion from August 2015.

Keynote 180 (phase II study, palliative chemotherapy in 3. line for esophageal cancer; MK3474). MSD study. Inclusion from January 2016.

Keynote 181 (randomised phase III study, palliative chemoterapy in 2. line for esophageal cancer; standard chemotherapy vs MK3475). MSD study. Inclusion from January 2016.

Nordic NEC registry (registry study for all patients with neuroendocrine carcinoma of the GI-tract (GEP-NEC)). Inclusion from 2013. NNTG (Nordic Neuroendocrine Tumor Group). See reference 3 in the publication list (GO Hjortland is co-author).

ET-NEC. Nordic one armed phase II study for patients with GEP-NEC, Ki67 index 20-55%, first line treatment with everolimus and temozolomid. Inclusion from October 2014. NNTG study.

Meetings: There has been no group meetings but two meetings in the scandinavial esophageal and gastric cancer group.
Publications: 8 original publications international journals, 2 digital abstracts

Publications

Hauge T, Franco-Lie I, Løberg EM, Hauge T, Johnson E. Outcome after endoscopic treatment for dysplasia and superficial esophageal cancer - a cohort study. Scand J Gastroenterol. 2020 Sep;55(9):1132-1138. doi: 10.1080/00365521.2020.1800813. Epub 2020 Aug 4. PMID: 32748653.

Hauge T, Amdal CD, Falk RS, Johannessen HO, Johnson E. Long-term outcome in patients operated with hybrid esophagectomy for esophageal cancer - a cohort study. Acta Oncol. 2020 Jul;59(7):859-865. doi: 10.1080/0284186X.2020.1750694. Epub 2020 Apr 23. PMID: 32324079.

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Abstracts

61 THE 5-YEAR RESULTS FOR ENDOSCOPIC TREATMENT OF SUPERFICIAL ESOPHAGEAL CANCER AT A NORWEGIAN UNIVERSITY HOSPITAL T Hauge1,3 T Hauge2,3 M Franco-Lie2 E Johnson1,3 1.Department of Gastrointestinal and Child Surgery, Oslo University Hospital, Ullevål, Norway 2.Department of Gastroenterology and Hepatology, Oslo University Hospital, Ullevål, Norway 3.Faculty of Medicine, University of Oslo, Norway. Diseases of the Esophagus, 2020.

146 LEVEL OF DYSPHAGIA AND QUALITY OF LIFE FOLLOWING ENDOSCOPIC TREATMENT OF LOW-GRADE DYSPLASIA AND SUPERFICIAL ESOPHAGEAL CANCER T Hauge1,3 T Hauge2,3 M Franco-Lie2 C Amdal4 E Johnson1,3 1.Department of Gastrointestinal and Child Surgery, Oslo University Hospital, Ullevål, Norway 2.Department of Gastroenterology and Hepatology, Oslo University Hospital, Ullevål, Norway 3.Faculty of Medicine, University of Oslo, Norway 4.Department of Research Support Service, Oslo University Hospital, Norway. Diseases of the Esophagus 2020.

Department of Rheumatology, Dermatology and Infectious Diseases (RHI)

- Hud/ Dermatology Research Group
- Klinisk mikrobiologi og mikrobiotamedisin/ CliMic: Clinical microbiology and microbiota medicine
- Olafiaklinikken
- Revmatologi / Rheumatology

Forskningsgruppe: Hud

Research group: Dermatology Research Group

Avdeling: RHI

Gruppeleder: Olav Sundnes

Om gruppen:

Vår forskning fokuserer på to kjerneområder; hudinflammasjon og hudkreft. Vi driver både translasjonell og klinisk forsking, og har flere pågående kliniske studier. Aktiviteten er tett knyttet opp til vårt kvalitets- og forskningsregister (Dermareg) og avdelingens biobank (RHI biobank).

About the group:

Our research focuses on to main areas; skin inflammation and skin cancer. We perform both translational and clinical research, and our research registry (Dermareg) and biobank (RHI biobank) form the basis for the current research activity.

Hovedmedlemmer / Main members:

NAME	POSITION/TITLE/ROLE	EMPLOYER /AFFILIATION	E-MAIL
Jan Sitek	Senior consultant/head of section	OUS	jsitek@ous-hf.no
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Assosierte medlemmer / Associated members:

NAME	POSITION/TITEL/ROLE	EMPLOYER/AFFILIATION	E-MAIL
Guttorm Haraldsen	Professor	UiO	
Karin Lødrup Carlsen	Professor	UiO	

Activity in 2020:

PhD dissertations in 2020

Mohammad Rizvi - Long-term dermatological complications after organ transplantation

Eva Rehbinder - Early life predictors for atopic dermatitis in infancy

Kuan Yang - Metabolic Regulation of TLR4 and NLRP3 Activities. (IIF, Main supervisor Sandanger)

Ongoing PhD-projects

- PhD-project Astrid Lossius, Early gene expression changes as predictors of therapeutic response to narrow-band UVB in atopic dermatitis, in progress (Main supervisors Holm)
- PhD-project Olav Gramstad, hereditary angioedema, in progress (Main supervisor Landrø)
- PhD-project Siri Hansen Stabell, hidradenitis suppurativa, in progress (Main supervisor Sundnes)

Ongoing clinical trials and other research projects:
- GENTLEBULL study - topical gentamycin in epidermolysis bullosa (Sandanger)
- Treatment of genital lichen planus in women. Investigator-initiated RCT on oral treatment with the apremilast for genital erosive lichen planus (Helgesen)
- Moderate to Severe Atopic Dermatitis: Evaluation of Upadacitinib in Combination with Topical Corticosteroids in Adolescent and Adult Subjects" (Abbvie) (Berents)
- A NORwegian multicentre trial assessing the effectiveness of tailoring infliximab treatment by therapeutic DRUg Monitoring (NOR-DRUM) (Sandanger)
- An Observational Post-authorization Safety Study of Ustekinumab(Janssen) in the Treatment of Pediatric Patients Aged 12 Years and Older with Moderate to Severe Plaque Psoriasis (Sitek)
- Finger pulp blood flow in systemic sclerosis patients with digital ulcers treated with sympathetic blockade (Bergersen).

Selected Key Publications:

Lossius AH, Berents TL, Saetre F, Nilsen HR, Bradley M, Asad S, Haraldsen G, Sundnes O, Holm JØ (2020) *Early transcriptional changes after UVB treatment in atopic dermatitis include inverse regulation of IL-36γ and IL-37. Exp Dermatol*, 30 (2), 249-261. DOI 10.1111/exd.14217, PubMed 33067891

Skjerven HO, Rehbinder EM, Vettukattil R, LeBlanc M, Granum B, Haugen G, Hedlin G, Landrø L, Marsland BJ, Rudi K, Sjøborg KD, Söderhäll C, Staff AC, Carlsen KH, Asarnoj A, Bains KES, Carlsen OCL, Endre KMA, Granlund PA, Hermansen JU, Gudmundsdóttir HK, Hilde K, Håland G, Kreyberg I, Olsen IC et al. (2020) *Skin emollient and early complementary feeding to prevent infant atopic dermatitis (PreventADALL): a factorial, multicentre, cluster-randomised trial* *Lancet*, 395 (10228), 951-961 DOI 10.1016/S0140-6736(19)32983-6, PubMed 32087121

Pietka W, Sundnes O, Hammarström C, Zucknick M, Khnykin D, Haraldsen G (2020)
Lack of interleukin-33 and its receptor does not prevent calcipotriol-induced atopic dermatitis-like inflammation in mice *Sci Rep*, 10 (1), 6451 DOI 10.1038/s41598-020-63410-z, PubMed 32296080

Lundborg M, Holm JH, Sandvik L, Lossius AH, Rehbinder EM, Sitek JC, Berents TL (2020)
Multidisciplinary educational programme for caregivers of children with atopic dermatitis- in South East Norway - an observational study
BMC Dermatol, 20 (1), 20 DOI 10.1186/s12895-020-00119-6, PubMed 33298043

Lossius AH, Lorentzen M, Austad J, Bergersen TK. *Contact allergy in patients with chronic venous leg ulcers.* Contact Dermatitis. 2020 Dec 27. doi: 10.1111/cod.13770. Online ahead of print.Contact Dermatitis. 2020. PMID: 33368388

Alfonso JH, Martinsen JI, Weiderpass E, Pukkala E, Kjaerheim K, Tryggvadottir L, Lynge E. *Occupation and cutaneous melanoma: a 45-year historical cohort study of 14·9 million people in five Nordic countries.* Br J Dermatol. 2020 Jul 6. doi: 10.1111/bjd.19379..*Br J Dermatol*. 2020. PMID: 33026672

Alfonso JH, Afanou AK, Holm JØ, Stylianou E *Skin bioengineering in the diagnosis of occupational protein contact dermatitis.* *Occup Med (Lond*). 2020 Jun 20;70(4):282-285. doi: 10.1093/occmed/kqaa005.Occup Med (Lond). 2020. PMID: 32009172

Forskningsgruppe: Klinisk mikrobiologi og mikrobiotamedisin

Research group: CliMic: Clinical microbiology and microbiota medicine

Avdeling: Reumatologi, hudsykdommer og infeksjonssykdommer (RHI)

Gruppeleder: Marius Trøseid

About the group:
Marius Trøseid is leading a research group on Clinical Microbiology and Microbiota Medicine (CliMic) at Department of Rheumatology, Dermatology and Infectious diseases at Oslo University Hospital, Rikshospitalet. In this environment, we have developed a sequencing-based microbiota profiling pipeline including bioinformatics methods and applied it in multiple conditions, including HIV and cardiovascular disease. We have also established a regional research network (ReMicS: Regional research network for clinical Microbiota Science) and are hosting a yearly national microbiota conference (www.microbiota.no). Our scientific focus is the role of the gut microbiota in chronic infectious, inflammatory and metabolic diseases, including cardiovascular disease. The aim is to better understand the contribution of the gut microbiome in order to lay the foundation for clinical microbiota medicine, i.e. medical practice based on stratification or modulation of gut microbial composition or function. More recently, the scientific focus has also included COVID-19 research, as part of the managing team of the Nordic branch of the WHO solidarity trial (NOR solidarity), and as collaborator in the Horizon 2020 consortium EU-RESPONSE (European Research and Preparedness Network for Pandemics and Emerging Infectious Diseases).

Hovedmedlemmer / Main members:

NAME	POSITION/TITLE/ROLE	EMPLOYER/AFFILIATION	E-MAIL
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Birgitte Stiksrud	Senior researcher	OUS and UiO	birgitte.stiksrud@medisin.uio.no

Activity in 2020:

ONGOING AND COMPLETED PROJECTS

- COMicS (Copenhagen-Oslo Co-morbidity and Microbiota Study in HIV infection). Planned as the largest prospective microbiome study in HIV-infected individuals. This project was finalized during 2019, with first paper accepted for publication (Gelpi M & Vestad B, et a.l Impact of HIV-related Gut Microbiota alterations in Metabolic Comorbidities. Clin Inf Dis 2020). PhD successfully defended November 2020.
- GutHeart (Targeting the gut microbiota to treat heart failure). The first adequately powered RCT targeting the gut microbiome aiming to improve cardiac function in heart failure patients, comprising n=150 patients. Also this ambitious project was finalized during 2020, with manuscript drafted and submitted December 2020.
- Targeting the NLRP3 inflammasome in HIV infection. The aim is to explore whether inflammasome activation is enhanced during HIV infection, and if so, if inflammasome activation could explain increased cardiovascular risk in HIV-infected individuals. Several papers have been published from this ongoing project (Hoel H, et al. Soluble markers of IL-1 activation as predictors of first-time myocardial infarction in HIV-infected individuals. J Inf Dis 2019). We have also published a paper on inflammasome activation and cardiac involvement in COVID-19 (Hoel H, et al. J Int Med 2020). Thesis was submitted for PhD defence December 2020.
- In collaboration with Johannes Hov group we have established the regional research network ReMicS (Regional research network for clinical Microbiota Science), encompassing > 25 research groups. This year has been challenging due to the COVID-19 pandemic, but we have managed to keep the network alive through regular video meetings, as well as a national meeting organized from Oslo Streaming Center.
- Also in collaboration with Johannes Hov group, we have got funding for a Focused research area at Oslo University Hospital, where the main goal is to establish a therapeutic feces donor bank with relevance for ongoing microbiota research, including clinical treatment of *C Difficile* infection, ESBL eradication and biological cancer treatment by transferring microbiota from responders to non-responders.
- We have received funding through the Era-Net for managing a WP on multi-level integrated bioinformatics in the SCRATCH consortium (Microbiota-based SCReening of Anal Cancer in HIV-infected individuals), aiming to improve diagnostic screening of HIV-associated anal cancer, taking microbiota profiling one step closer to clinical practice. Microbiota analyses have been finalized and bioinformatics started during 2020.
- We have also received NRC funding for the project "Targeting the gut heart axis", and have hired a post doc bioinformatician who started in 2020. A common theme in this project and SCRATCH is to develop integrated multi-level bioinformatics of metagenomics, metabolomics and proteomics analyses.
- Trøseid has recently taken the role as chief investigator for the novel pan-European adaptive platform trial for COVID and emerging pandemics, EU SolidAct, set up to run phase II and phase III trials in around 15 European countries, with OUH as sponsor.

Forskningsgruppe: Olafiaklinikken

Research group: Olafiaklinikken

Avdeling: Avdeling for revmatologi, hud og infeksjonssykdommer

Gruppeleder: Usha Hartgill

Om gruppen:

Forskningsgruppen studerer smittemekanismer, utbredelse, diagnostikk og behandling av kjønnssykdommer. Olafiaklinikken i Oslo sentrum har et åpent poliklinisk tilbud for diagnostikk og behandling av kjønnssykdommer. Som Nordens største klinikk innen venerologi har vi opparbeidet er stor og unik database som gir svært gode forutsetninger for å drive epidemiologisk forskning. Med stort pasienttilfang er det godt tilrettelagt for forskning relatert til diagnostikk og behandling på områder der det er behov for ny kunnskap.

About the group:

Olafiaklinikken is the largest clinic for sexually transmitted infections in the Nordic region. We have unique access to a large patient population with a variety of background characteristics, symptoms, clinical findings and infections.
We also hold the function as the National Advisory Unit on Sexually Transmitted Infections, and therefore our research focus is on clinical studies providing results to support evidence based medicine and guidance for treatment practice.

Hovedmedlemmer / Main members:

NAME	POSITION/TITLE/ROLE	EMPLOYER/AFFILIATION	E-MAIL
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Aktivitet i 2020 / Activity in 2020:

Links between chemsex and reduced mental health among Norwegian MSM and other men: results from a cross-sectional clinic survey.
Berg RC, Amundsen E, Haugstvedt Å. BMC Public Health. 2020 Nov 25;20(1):1785. doi: 10.1186/s12889-020-09916-7.BMC Public Health. 2020. PMID: 33238948

Projects

- Evaluation of implementation of pre-exposure prophylaxis (PrEP) in subjects at particular risk of infection with HIV, Frank Olav Pettersen, Michelle Hanlon, Oslo universitetssykehus HF, Project period: 2017 – 2022, participating health region: HV HSØ

-Gonore-studien; 'Gonorrhoea - an 'urgent and major threat to public health': Diagnostic challenges, transmission, molecular epidemiology and antimicrobial resistance in Norway'. Linn Merete Brendefur Corwen and Patricia Merckoll er doktorgradsstudenter med hovedansvar for dette prosjektet. TTA er et forskningsnettverk etablert i Oslo Universitetssykehus med antimikrobiell resistens (AMR) som tematisk forskningsområde med bredt samarbeid nasjonalt og internasjonalt. Vår rolle i dette er gjennom forskning på resistensutviklingen ved gonore. Som en del av dette, har vi bl.a etablert samarbeid med referanselaboratoriet for gonokokker ved Folkehelseinstituttet som igjen vil legge til rette for og initiere mer forskning på gonore som også involverer de andre helseregioner.

-Turning the tide of Antimicrobial resistance (TTA) Fredrik Muller, Oslo universitetssykehus HF Prosjektperiode: 2016 – 2023 Deltakende helseregion: HSØ

Department of Transplantation (ATX)

- Eksperimentell transplantasjon for kreft / Experimental Transplantation and Malignancy
- Klinisk transplantasjonskirurgi og eksperimentell immunologi / Clinical transplantation surgery and experimental immunology
- Klinisk forskningsgruppe for primær skleroserende kolangitt / Clinical PSC Research Group
- Nyretransplantasjonsmedisin / Kidney Transplantation
- Eksperimentell Celletransplantasjon / Experimental Cell Transplantation
- Klinisk Effektforskning / Clinical Effectiveness Research Group
- Forskningsgruppe for livskvalitet og helseøkonomi / Quality of life and Health Economics
- Nevroendokrine svulster / Neuroendocrine tumors

Forskningsgruppe: Eksperimentell transplantasjon for kreft

Research group: Transplantation and Malignancy

Avdeling: Avdeling for transplantasjonsmedisin

Gruppeleder: Svein Dueland

Om gruppen:

Gruppen arbeider med levertransplantasjon hos pasienter med malign sykdom og spredning utelukkende til lever. Aktuelle pasienter har så omfattende sykdom i lever at vanlig leverkirurgi ikke er aktuelt. Behandlingsalternativet hos pasienter som er aktuelle for inklusjon i de ulike levertransplantasjonsstudiene er palliativ kjemoterapi. Forskningsgruppen har fokusert på pasienter med levermetataser fra tykk-eller endetarmskreft som ikke kan få utført leverreseksjon på grunn av for omfattende sykdom i lever. Median forventet overlevelse på kjemoterapi hos inkluderte pasienter har vært omtrent 1 år ved tidspunkt for levertransplantasjon. Forskningsgruppen består av transplantasjonskirurger, onkologer, radiologer, nukleærmedisinere, thoraxkirurg, gastrokirurg (leverkirurg), studiesykepleier og helsefagforsker. Gruppen har også etablert samarbeid med helseøkonomer.

About the group:

The research group is exploring liver transplantation as a treatment option for patient with different malignant diagnoses, primarily patients with colorectal cancer. Patients that may be included in the different liver transplantation protocols have non-resectable liver only disease. The treatment option today for these patients is palliative chemotherapy with median expected overall survival of about one year at time of inclusion in the liver transplantation studies. Members of the research group are transplant surgeons, oncologists, radiologists, nuclear medicine specialists, liver surgeon and thorax surgeon. Research projects also include health economic expertise.

Hovedmedlemmer / Main members:

NAME	POSITION/TITLE/ROLE	EMPLOYER/ AFFILIATION	E-MAIL
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Maria Gjerde	Study nurse	OUS	mgjerde@ous-hf.no
Svein Dueland	Senior consultant	OUS	svedue@ous-hf.no

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Trygve Syversveen	Consultant	OUS	tsyversv@ous-hf.no

Collaboration

Internal (other groups, departments, clinicians, etc.):

- Trygve Syversveen and Mona-Elisabeth Revheim , Department of Radiology, OUS
- Sheraz Yaqub, Department of HPB surgery, OUS

National:

- Gudrun Bjørnelv , The Institute of Health and Society, UiO
- Eline Aas , The Institute of Health and Society, UiO

International:

- Professor Julia Johansen, Herlev University Hospital, Denmark
- Professor Eric Vibert; Hopital Paul Brousse Paris
- Professor Umberto Cillo, University of Padova, Italy
- Professor Roberto Hernandez Alejandro, URMC, Rochester NY, USA
- Associate professor Gonzalo Sapisochin, UHN Toronto General Hospital, Toronto, Canada

Aktivitet i 2020 / Activity in 2020:

We started in 2006 a pilot study (SECA-I) on liver transplantation (LT) in patients with colorectal cancer (CRC) with liver only metastases that had liver metastases that could not be resected. CRC patients were palliative chemotherapy is the only treatment option have median overall survival (OS) of about 2 years from time of starting first line chemotherapy. In the SECA-I study final 5-year OS was 44% and six patients are alive more than 10 years after LT. All 23 patients included in the SECA-I study had a relapse of the malignant disease after LT, however they survived for long period of time after the relapse with median OS after relapse of 55 months. Several patients have survived for more than 10 years after relapse with a patient who has survived for more than 13 years after time of relapse.

The reason for the long OS from time of relapse is that the majority of relapses were small pulmonary metastases that increase at a slow rate. Many of the patients developing pulmonary metastases after the LT received surgical resection of the pulmonary metastases. Patients with multiple site of relapse should be considered for palliative chemotherapy. In general patients tolerate chemotherapy after LT, however one should pay increased attention to symptoms as diarrhea, mucositis and skin reactions when starting palliative chemotherapy.

OS after LT was related to clinical factors as: size of largest liver lesion, plasma tumor marker CEA levels, response to chemotherapy at time of LT and time from resection of the primary colorectal cancer and LT (Oslo Score). By stricter selection criteria (SECA-II study), excluding patients with progressive disease at time of LT and at least one year from time of diagnosis, we have now reported estimated 5-years OS after LT of 83%. In contrast to SECA-I study where all 23 included patients had a relapse after LT, some patients in the SECA-II study have been observed for more than 7 years without a relapse. Also in the SECA-II study the most frequent site of relapse was pulmonary lesions that increased at a slow rate and many of the patients received surgical resection of the pulmonary metastases. Furthermore, we have also shown that PET activity in liver metastases could predict OS after LT.

In a recent publication we have shown that Kaplan-Meier calculated 5-years OS of about 70-100 % may be obtained by using different selection criteria as Oslo Score 0-2, Fong Clinical Risk Score 0-2 or PET-MTV (metabolic tumor volume)<70cm^3.
We have published that the patients having general symptoms related to the malignant disease as appetite loss at time of LT had significant decreased OS at 3 years after LT compared to patients without appetite loss. Similar findings were also observed for patients having fatigue.

To expand the liver donor pool available for LT in CRC patients we have also used donor livers that are not routinely used in LT, in general these organs works well and may represent an underutilized source of donor organs that may be used to expand donor organs for LT in CRC patients.

Health economic analyses indicate that LT is cost-effective in CRC patients with good prognosis after LT compared to modern palliative chemotherapy.
Furthermore, we have shown that the site of the primary tumor is of importance for OS after LT. Patients with primary tumor located in ascending colon have dismal prognosis after LT and should not be offered this treatment.

In a recent publication we have shown that patients with more than 9 liver metastases or largest liver lesion>5.5cm have longer overall survival after LT compared to similar patients treated by portal vein embolization and liver resection, if the primary tumor are located distal for ascending colon.

Our published results have resulted in increasing international interest in LT in CRC patients. LT studies in CRC patients have now been initiated in several countries including France, Italy, Nederland, Sweden and Canada.

Forskningsgruppe: Klinisk forskningsgruppe for primær skleroserende kolangitt

Research group: Clinical PSC Research Group

Avdeling: Avdeling for transplantasjonsmedisin

Gruppeleder: Trine Folseraas

Om gruppen:

Utredning og behandling av pasienter med primær skleroserende cholangitt (PSC) er en viktig del av den kliniske virksomheten ved Seksjon for gastromedisin på Rikshospitalet. Pasienter med PSC henvises fra hele landet, og PSC er en av de vanligste indikasjonene for levertransplantasjon i Norge. Gallegangskreft (cholangiocarcinom) er en fryktet komplikasjon til PSC som rammer opptil 20% av pasientene. Dessverre er det en utfordring å diagnostisere denne kreftformen tidlig nok til at kurativ behandling kan tilbys. Vår forskning fokuserer på å forbedre utredning, oppfølging og behandling av PSC pasienter, inkludert bedret diagnostikk og behandling av PSC-assosiert gallegangskreft.

About the group:

Primary sclerosing cholangitis (PSC) constitutes an important part of the patients seen at Department of Gastroenterology, Oslo University Hospital, Rikshospitalet. The Clinical PSC Research Group focus their effort on improving diagnosis, treatment and follow-up of PSC patients. We collaborate closely with the Clinical Liver Research Group at Haraldsplass Deaconess Hospital in Bergen, led by Mette Vesterhus, the Epigenetics Group at the Department of Cancer Prevention, Institute for Cancer Research at the Norwegian Radium Hospital, led by Guro E. Lind, the International PSC Study Group (IPSCSG) and the European Network for the Study of Cholangiocarcinoma (ENSCCA).

Hovedmedlemmer / Main members:

NAME	POSITION/TITLE/ROLE	EMPLOYER/ AFFILIATION	E-MAIL
Trine Folseraas	PhD/Senior consultant	OUS	trine.folseraas@medisin.uio.no
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Assosierte medlemmer / Associated members:

NAME	POSITION/TITEL/ROLE	EMPLOYER/ AFFILIATION	E-MAIL
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Activity in 2020:

Identification of genomic- and molecular alterations in PSC-associated cholangiocarcinoma.

In collaboration with IPSCSG and the Department of Pathology at the University Hospital of Heidelberg, we have established a large international collective of 186 tissue samples from PSC-patients with cholangiocarcinoma (PSC-CCA) from 11 centers in Europe and the US. In addition to histomorphological characterization, we performed tumor DNA sequencing at 42 known cancer-related genetic loci to detect mutations, translocations and copy number variations. This analysis allowed us to detect many putative therapeutic targets in PSC-CCA. Furthermore, we demonstrated that CCA in PSC shows a distinct and homogeneous molecular and morphological phenotype, reminiscent of extrahepatic CCA. The large number of potentially druggable mutations provides incentives for early phase clinical trials of molecular target drugs in PSC-associated biliary tract cancer. This work was published in Hepatology in 2020 (PMID: 31925805). Future projects further utilizing this valuable tissue collective is underway.

Identification of biomarkers of PSC-associated cholangiocarcinoma.

In collaboration with the Epigenetics Group at the Department of Cancer Prevention, Institute for Cancer Research at the Norwegian Radium Hospital, we have identified four DNA methylation markers that provide early and accurate detection of CCA in patients with PSC. These methylation biomarkers have been analyzed using bile samples collected from more than 300 Norwegian, Swedish and Finnish PSC patients. Findings strongly suggest that analyzing aberrant DNA methylation utilizing bile as liquid biopsy material may improve and complement current detection methods for CCA (manuscript under revision in Hepatology).

Continued systematic biobanking and registration of clinical data on PSC patients utilizing the infrastructure of the NoPSC biobank and the National network for autoimmune liver disease.

The biobank and database of the Norwegian PSC Research Center currently include clinical data and biological samples on close to 800 Norwegian PSC patients, and represent a valuable source for PSC research both nationally and internationally. We also contribute annual collection of data, imaging and blood samples from PSC patients followed at Rikshospitalet to the National network for autoimmune liver disease -a national multicenter study including a research registry and a prospective research biobank for non-transplanted patients with PSC.

Forskningsgruppe: Transplantasjonsmedisinsk forskningsgruppe

Research group: Research Group of Transplantation Medicin

Avdeling: Avdeling for transplantasjonsmedisin

Gruppeleder: Professor, overlege Trond Geir Jenssen

Om gruppen:

Gruppen utfører epidemiologiske og kliniske studier med endepunktsdata på pasienter som gjennomgår nyretransplantasjon, pankreastransplantasjon og øycelletransplantasjon. Data som publiseres er dels registerbasert (via et komplett nasjonalt endepunktsregister som oppdateres årlig (Norsk nyreregister)samt en lokal biobank, dels randomiserte kliniske studier som initieres av gruppen selv, og deltakelse i internasjonale multisenter-studier. Studiene fokuserer spesielt på immunterapi, farmakokinetikk, farmakokinetisk modellering og metabolisme, med fokus på post-transplantasjons diabetes (PTDM).

About the group:

The research group carries out epidemiological and clinical outcome studies in kidney transplantation, pancreas transplantation and islet transplantation. Data from the Norwegian Renal Registry (which is updated yearly) together with data from a local biobank are generated, together with RCTs and observational studies. The studies focus on immunotherapy, pharmacokinetics, pharmacotherapeutic modelling and metabolism, in particular metabolism in post-transplant diabetes (PTDM).

Hovedmedlemmer / Main members:

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Aktivitet i 2020 / Activity in 2020:

Two of our candidates defended their thesis in 2020 (Espen Nordheim and Marte Theie Gustavsen. A new PhD candidate started Sep 1 on a project financed by University of Oslo (Markus Herberg Hovd, cand.pharm.)

New projects started in 2020:

1. Covid-19 vaccine study among kidney transplant recipients
2. EVITA (Epstein-Barr virus infection monitoring in renal transplant recipients)
3. BONTRAX – 10 years follow-up of bisphosphonate treatment in kidney transplant recipients

Continued projects which started in 2019:

1. Hypomagnesemia as a risk factor for development of posttransplant diabetes mellitus (PhD project Rasmus Kirkeskov Carlsen).
2. The microbiome and gut metabolism of mycophenolate acid.

Other ongoing projects were continued in 2020:

- Post-transplant diabetes
- Kidney rejection and immunity
- Osteoporosis after transplantation
- Individualization of immunosuppression, also with home based blood sampling (MitraTip®)
- Biomarkers of outcomes after transplantation
- Measured GFR by iohexol plasma clearance vs. estimated glomerular filtration rate
- Evaluation and follow-up of kidney donors (ALDON Study)

In relation to these topics altogether 44 peer-reviewed papers were published in international journals in 2020.

Our biobank was expanded, and we have established valid measures for long-term outcome after transplantation (e.g., GFR, pharmacological and metabolic measures, inflammation parameters, etc.). We have joined an international network for refinement of GFR measurements with iv iohexol. Four representative papers published by our group in 2020 are cited below:

1. Åsberg A, Bjerre A, Almaas R, Luis-Lima S, Robertsen I, Porrini E, Schwartz G, Hartmann A, Bergan S. Measured GFR by utilizing population pharmacokinetic methods to determine iohexol clearance. KI Reports 2020; 5(2), 189-198.
2. Gustavsen MT, Midtvedt K, Robertsen I, Woillard J-B, Debord J, Klaasen RA, Vethe NT, Bergan S, Åsberg A. Fasting status and circadian variation must be considered when performing AUC-based therapeutic drug monitoring of tacrolimus in renal transplant recipients. Clin Translat Sci 2020;13(6): 1327-1335.
3. Pihlstrøm HK, Ueland T, Michelsen AE, Aukrust P, Gatti F, Hammarström C, Kasprzycka M, Wang J, Haraldsen G, Mjøen G, Dahle DO, Midtvedt K, Eide IA, Hartmann A, Holdaas H. Exploring the potential effect of paricalcitol on markers of inflammation in de novo renal transplant recipients. PLoS One. 2020; 15(12): e0243759.
4. Haugen AJ, Hallan S, Langberg NE, Dahle DO, Pihlstrøm H, Birkeland KI, Reisaeter A, Midtvedt K, Hartmann A, Holdaas H, Mjøen G. Increased long-term risk for hypertension in kidney donors - a retrospective cohort study. Transpl Int. 2020; 33(5): 536-543.

Forskningsgruppe: Eksperimentell Celletransplantasjon

Research group: Experimental Cell Transplantation

Avdeling: Avdeling for transplantasjonsmedisin (ATX)
Gruppeleder: Hanne Scholz
About the group:

The research group has a translational approach consisting of members with a research background in medicine, biology, stem cell biology, tissue engineering, transplantation, and laboratory engineering.

Major aims:

- To develop novel strategies for beta cell replacement of patients with diabetes
- To develop novel strategies for tissue engineering and regeneration of islet cells

Our research focused on developing beta cell replacement therapy for type 1 diabetes and understanding human islet cell biology. The human islet consists mainly of insulin-producing beta cells and glucagon producing alpha cells responsible for the fine-tune regulation of our blood glucose level in our body. The laboratory aims to improve the care for diabetic patients and has a clear and strong focus on clinical translation based on experimental research. Scholz is head of the Cell Therapy Laboratory for islet isolation and mesenchymal stromal/stem cell preparation that holds international standards. The group work in close collaboration with the Nordic Network for Clinical Islet transplantation and Uppsala group (led by Prof. Olle Korsgren). The research group is integrated in the Centre of Excellence -Hybrid Technology Hub at Institute of Basic Medical Sciences, UiO for developing organoids and the organ on a chip technology.

Along the experimental research line, the group has contributed to several studies showing that human islets can be protected from diabetic micro-environmental stress such as inflammation and hyperglycemia. We actively participate in European networks of leading islet laboratories that investigate and improve the methodology for the isolation process of islets from deceased donor pancreases, leading to several excellent publications. We are continuing to find innovative approaches using 3D bioprinting technology to deliver pancreatic islets with supporting cells that will allow us to define alternative graft sites. These studies will also allow us to create the optimal design favouring islet survival and long-term functionality on a chip platform.

To open new perspectives for the future, the laboratory has started to develop other projects complementary to the primary islet research. Using the iPS technology to differentiate human stem cells in vitro into mature cells with fully functional properties has proven difficult. Along this line, we collaborate with Prof. Helge Ræder and Assoc. prof Simona Chera at the University of Bergen to develop human iPS towards the final mature insulin-producing beta cells evident by several published papers this year. Importantly, Hanne Scholz has taken this research further into the new project «Artificial Biomimetic systems – the Niche of Islet Organoids (ABINO)» funded by UiO: Life Science Convergence Environment II.

The lab is funded by the Research Council of Norway, UiO:Life Science, South-Eastern Norway Regional Health Authority, University of Oslo, The Norwegian Diabetes Association, Oslo Diabetes Research Center.

Hovedmedlemmer / Main members:

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Activity in 2020:

Ongoing projects:

1. Development of beta cell replacement therapy for type 1 diabetes
2. Using iPS technology to in vitro differentiate human stem cells into mature functional cells
3. Create functional mini-pancreas for "organ on a chip" platform, together with the Centre of Excellence -Hybrid Technology Hub at IMB, UiO
4. Regenerative/repair of the endocrine compartment of the pancreas using adult stem cells
5. Development of the decidua stromal cells (DSC) ATMP product for the clinical trial: "Safety Trial, DSC vs. BAT in SR acute GvHD" and "DSC-COVID-19: An open-label study on the safety and efficacy of decidual stromal cells in respiratory failure induced by COVID-19"
6. Tissue engineering of vasculature and bioartificial pancreas using decellularization and 3D Bioprinting technology

Publications 2020:

von Zur-Mühlen B, Scholz H, Hellman J, Korsgren O, Lundgren T. Treating diabetes with islet transplantation: Lessons learnt from the Nordic network for clinical islet transplantation. Transplantation, Bioengineering, and Regeneration of the Endocrine Pancreas: Academic Press; 2020. p. 599-611.

Scholz H, Nano R, Kerr-Conte JA, , Engelse M, Karlsson M, Saudek F, Bosco D, Antonioli B, Bertuzzi F, Johnson PR. Heterogeneity of human pancreatic islet isolation around Europe: results of a survey study. Transplantation. 2020;104(1):190-6.

Legøy TA, Vethe H, Abadpour S, Strand BL, Scholz H, Paulo JA, Ræder H, Ghila L, Chera S. Encapsulation boosts islet-cell signature in differentiating human induced pluripotent stem cells via integrin signalling. Scientific reports. 2020;10(1):1-16.

Legøy TA, Mathisen AF, Salim Z, Vethe H, Bjørlykke Y, Abadpour S, Paulo JA, Scholz H, Ræder H, Ghila L. In vivo environment swiftly restricts human pancreatic progenitors toward mono-hormonal identity via a HNF1A/HNF4A mechanism. Frontiers in cell and developmental biology. 2020;8:109.

Legoy TA, Ghila L, Vethe H, Abadpour S, Mathisen AF, Paulo JA, Scholz H, Raeder H, Chera S. In vivo hyperglycaemia exposure elicits distinct period-dependent effects on human pancreatic progenitor differentiation, conveyed by oxidative stress. ACTA PHYSIOLOGICA. 2020;228(4).

Kwak D, Combriat T, Wang C, Scholz H, Danielsen A, Jensenius AR. Music for cells? A systematic review of studies investigating the effects of audible sound played through speaker-based systems to cell cultures. bioRxiv. 2020.

Korsgren O, Scholz H. Cellular therapies in preclinical and clinical islet transplantation: Mesenchymal stem cells. Transplantation, Bioengineering, and Regeneration of the Endocrine Pancreas: Academic Press; 2020. p. 821-31.

Kogler S, Harrison S, Aizenshtadt A, Skottvoll FS, Abadpour S, Krauss S, Scholz H, Sullivan G, Lundanes E, Wilson SR. "Organoid-in-a-column" coupled on-line with liquid chromatography-mass spectrometry. bioRxiv. 2020.

Brandhorst H, Brandhorst D, Abraham A, Acreman S, Schive SW, Scholz H, Johnson PR. Proteomic Profiling Reveals the Ambivalent Character of the Mesenchymal Stem Cell Secretome: Assessing the Effect of Preconditioned Media on Isolated Human Islets. Cell Transplantation. 2020;29:0963689720952332.

Amini M, Niemi E, Hisdal J, Kalvøy H, Tronstad C, Scholz H, Rosales A, Martinsen ØG. Monitoring the quality of frozen-thawed venous segments using bioimpedance spectroscopy. Physiological measurement. 2020;41(4):044008.

Abadpour S, Tyrberg B, Schive SW, Huldt CW, Gennemark P, Ryberg E, Rydén-Bergsten T, Smith DM, Korsgren O, Skrtic S, Winzell MS, Scholz H. Inhibition of the prostaglandin D 2–GPR44/DP2 axis improves human islet survival and function. Diabetologia. 2020;63(7):1355-67.

Abadpour S, Aizenshtadt A, Olsen PA, Shoji K, Wilson SR, Krauss S, Scholz H. Pancreas-on-a-Chip Technology for Transplantation Applications. Current Diabetes Reports. 2020;20(12):1-13.

Invited speaker 2020

- Event: Main event Oslo Life Science February 10, 2020: Life sciences in the next decade- Pitches from UiO:Life Science's convergence environments
  Invited Speaker: Hanne Scholz
  Title: Future models for diabetes research by using new strategies for stem cell differentiation – collaboration between medicine, musicology and physics
- Event: 3rd IPITA/JDRF/HSCI Conference on Stem Cell-derived Beta Cells November 2-3, 2020
  Invited Speaker: Hanne Scholz
  Title: Wnt Signaling and Beta Cell Maturation
- Event: Webinar on challenges and potential in regenerative medicine November 23, 2020. The Norwegian Academy of Science and Letters.
  Speaker and panelist: Hanne Scholz
  Title: What is the status of Norwegian research in regenerative medicine?
- Event: Oslo Diabetes Forskningssenter 30 år Jubileumssymposium. 8. februar 2020
  Invitert foredragr: Hanne Scholz
  Tittel: Transplantasjon - en kur?
- Event: Sundvolden-symposiet 5 februar, 2020
  Tittel: Bruk av stamceller som celleterapi for type 1 diabetes
  Invitert foredrag: Hanne Scholz

Forskningsgruppe: Klinisk Effektforskning – Avdeling for Kirurgi, Inflammasjonsmedisin og Transplantasjon, Oslo Universitetssykehus og Institutt for Helse og Samfunn, Universitetet i Oslo

Research group: Clinical Effectiveness Research Group - Division of Transplantation medicine, Inflammation and Surgery, Oslo University Hospital and Institute of Health and Society, University of Oslo

Avdeling: Avdeling for transplantasjonsmedisin, KIT

Gruppeleder: Mette Kalager

Om gruppen:

Forskergruppen ble startet i 2012 av Michael Bretthauer og Mette Kalager og har i 2020 27 medlemmer. Gruppen gjennomfører store randomiserte og epidemiologiske studier for å vurdere effekter av ulike diagnostiske og terapeutiske intervensjoner.

Målet med forskningen er å finne ut om kliniske intervensjoner og behandlinger virker, hvilken behandling eller diagnostikk som virker best, og hvilke bivirkninger og komplikasjoner de har. Gruppen har inkludert mer enn 400.000 deltagere i pågående studier. Gruppen samarbeider med de fleste sykehusene i Norge og mange ledende forskingsinstitusjoner i utlandet.

About the group:

The research group was established by Michael Bretthauer and Mette Kalager in 2012. In 2020, the Group has 27 members. The Group conducts large randomized trials and epidemiologic studies to test end compare diagnostic and therapeutic clinical interventions.

The main goal of the research is to find if clinical interventions and treatments work, what works best, and what side effects and complications they have. Currently more than 400.000 participants are enrolled in ongoing studies. The group collaborates with most hospitals in Norway and with many leading research institutions worldwide.

Collaboration:

Internal (other groups, departments, clinicians, etc.): ▪ Gastromedisinsk avdeling, Ullevål sykehus ▪ Miljø for Helseøkonomisk evaluering, HELED, UiO ▪ Seksjon for sykelig overvekt, Aker sykehus ▪ The IBSEN (Inflammatory Bowel South-Eastern Norway) Study group ▪ The clinical research center, KIT OUS ▪ Section for gastroenterology, Rikshospitalet ▪ Microbiota network, OUS ▪ Dep. of infectious diseases, OUS	*National* ▪ Senter for sykelig overvekt, Sykehuset i Vestfold ▪ MAking Grade the Irresistible Choice (MAGIC) ▪ Akershus Universitetssykehus ▪ Sykehuset Østfold ▪ Sørlandet sykehus ▪ Sykehuset Telemark ▪ Stavanger Universitetssykehus ▪ Haukeland Universitetssykehus ▪ Ålesund sykehus ▪ Levanger sykehus ▪ St Olavs hospital ▪ Universitetssykehuset Nord-Norge ▪ Bærum sykehus Vestre Viken
International: ▪ Harvard T.H Chan School of Public Health, Boston ▪ Karolinska Institutet, Stockholm ▪ Erasmus Medical Centre, Rotterdam ▪ Marie Curie Sklodowska, Warsawa ▪ Sloan Kettering Memorial, New York City ▪ McMaster university, Hamilton, Canada ▪ Alicante University ▪ Barcelona Hospital Clinic ▪ AMC Amsterdam ▪ Vienna University Hospital ▪ University of Porto ▪ University of Rome ▪ Aarhus University	

Hovedmedlemmer / Main members 2020:

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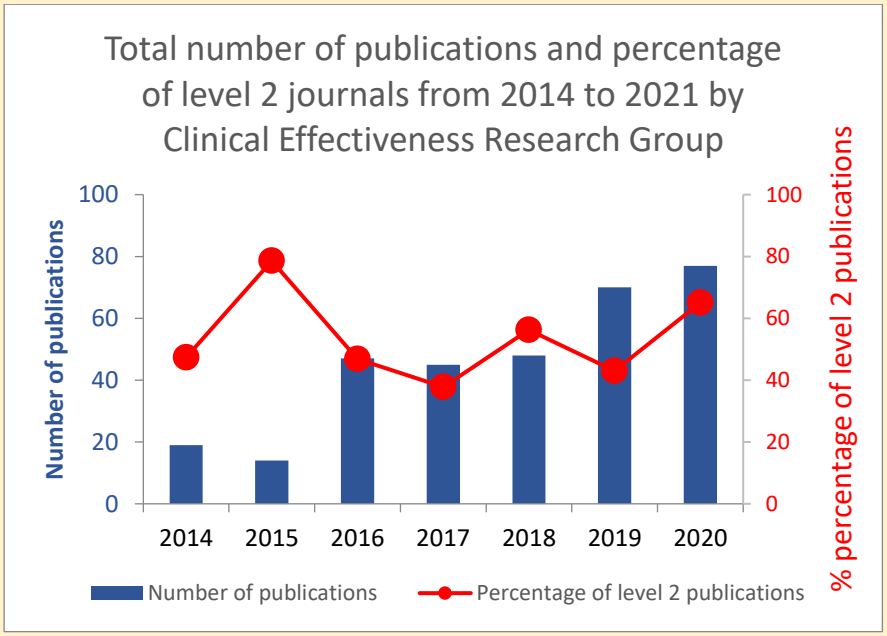
Lars Aabakken	Professor	OUS og UiO	lars.aabakken@medisin.uio.no

Aktivitet i 2020 / Activity in 2020:

The Group has had an expansive growth from its four members in 2012 to 27 members in 2020. All but four members of the Group, are funded by external grants.

Publications in 2020:

- The Group published 77 articles in peer-reviewed journals in 2020.
- Of all articles 65 % were published in level 2 journals (the top 20 % of journals).
- The mean impact factor of articles in 2020 is 8,8. The cumulative impact factor is 643.



Funding 2020:

The group received external funding in 2020 worth approx. NOK 30 million.

Activities 2020:

The Group published more than 50 newspaper articles and interviews. The Group leader, Mette Kalager, appeared in many TV and radio debates regarding the Covid-19 pandemic.

Selected Projects 2020:

- The TRAiN study. Risk of Covid-19 virus transmission in training facilities
- Focus Group study on the effects of the pandemic
- The Norwegian Colorectal Cancer Prevention trial NORCCAP
- Nordic-European Initiative on Colorectal Cancer NordICC
- European Polyp Surveillance trials EPoS
- COLONIZE
- EndoBRAIN)
- I-SCAN a
- SAR (surveillance after Adenoma Removal)

Awards 2020:

- Bretthauer M: Excellent Researcher Award of the Year from Oslo University Hospital.
- Helsingen LM; Fulbright Norway Article of the Year 2020.
- Mori Y: Best Reviewer Award 2020 of the journal “Endoscopy”.
- Mori Y: Best Reviewer Award 2020 of the journal “Gastrointestinal Endoscopy”.

Forskningsgruppe: Forskningsgruppe for pasientrapporterte resultater og helseøkonomi

Research group: Patient Reported Outcomes and Health Economics

Avdeling: Avdeling for transplantasjon-ATX

Gruppeleder: Marit Helen Andersen

Om gruppen:
Forskningsgruppe for pasientrapporterte resultater og helseøkonomi er en veletablert forskningsgruppe som utgår fra Avdeling for transplantasjon i KIT ved Oslo universitetssykehus. Bruk av mål på pasientrapporterte utfall er blitt et sentralt verktøy i kliniske studier. Helseøkonomiske analyser gir viktig kunnskap som grunnlag for prioriteringer i helsevesenet. Medlemmene i forskningsgruppen representerer ulike fagfelt med en felles metodeforankring. Forskningsgruppen har som mål å fungere som et bredt og støttende forskningsnettverk for å bidra til forskning av høy kvalitet, både innad i gruppen og eksternt.

About the group:
Research group for Patient Reported Outcomes and Health Economics is aiming to be a research network and communicate methodological issues within patient reported outcomes studies and health economics research. The group is multidisciplinary and has varied research activities related to a wide span of research questions within different patient groups. The research group is outgoing from Department of Transplantation at OUS, Division of Surgery, Inflammatory Diseases and Transplantation

Hovedmedlemmer / Main members (11):

NAME	POSITION/TITLE/ROLE	EMPLOYER/AFFILIATION	E-MAIL
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Eirik Gulseth	PhD-student Sykepleier	OUS og UiO	eirgul@ous-hf.no

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Kristian Heldal	PhD Master Nefrolog		hkri@ous-hf.no

Aktivitet i 2020 (selected):

- Stay at the Norwegian Academy of Science and Letters (CAS) during 2020 under the leadership of professor Eivind Engebretsen, Vice-Dean, UiO for the project *Body in Translation* aiming to study and analyse knowledge translation data from a health literacy project in dialysis patients awaiting kidney transplantation (Marit Helen Andersen & Astrid Klopstad Wahl).
- PROM-research conference HSØ:
  3. February, organized by Research group for Patient Reported outcomes and Health Economics + PROMiNET (101 participants)
- 4 regular meetings for main group members prepared with agenda
- 22 publications in peer reviewed international journals (main group members)
- Active collaboration with network partners (PROMiNET, LIVSFORSK, OsloMet, UiO): planning and performing research projects, funding, courses/teaching, recruiting master and PhD-candidates, supervision of master/PhD/post doc candidates, external scientific committee work etc) professor Richard Osborne, Australia, about health literacy projects
- HSØ applications (4), NFR application (1)
- 1 doctoral dissertation (main group member)
- National and international talks, presentations and education sessions within PROM- research/nephrology/transplantation/oncology etc

Ongoing research projects (selected):

- Health literacy challenges and strengths in patients treated at Division of Surgery, Inflammatory Medicine & Transplantation, Oslo University Hospital, at week 18, 2021
- Frailty in patients going through kidney transplantation
- Testing the effect of a new health communication intervention for renal transplant recipients. A randomized controlled study.
- Translational research: Feasibility testing of a health literacy intervention for dialysis patients awaiting kidney transplantation
- Transition for Hirschsprung patients.

Publikasjoner

1. Dahl K, Wahl AK, Urstad KH, R Andersen MH. Changing in health literacy during the first year following a kidney transplantation: using the Health Literacy Questionnaire. Patient Education and Counselling 2020. https://doi.org/10.1016/j.pec.2020.12.028

2. Andersen MH, Urstad KH, Larsen MH, Engebretsen E, Ødemark J, Eriksen A, Wahl AK. Processes of knowing in the translation of a health communication intervention for dialysis patients awaiting kidney transplantation. Patient Education and Counselling 2020. https://doi.org/10.1016/j.pec.2020.09.009

3. Larsen, MH, Strumse YSS, Borge CR, Andersen MH, Wahl AK. Viktige sammenhenger mellom alexithymi og helsekompetanse hos pasienter med psoriasis som har deltatt i klimabehandling. Best Practice Nordic 2020 (JUNI) p. -LDH LDS OUS UiO.

4. Borge CR, Larsen MH, Osborne RH, Engebretsen E, Andersen MH, Holter IA, Leine M, Wahl AK. Exploring patients' and health professionals' perspectives on health literacy needs in the context of chronic obstructive pulmonary disease. Chronic Illness Journal 2021, DOI: 10.1177/1742395321999441.

5. Hoel AT, Toft L, Bjørnland K, Staffs S, Gjone H, Teig C, Øresland T, Stenström P, Andersen MH. Reaching adulthood with Hirschsprung's disease: Patient experiences and recommendations for transitional care Journal of Pediatric Surgery 2020http://dx.doi.org/10.1016/j.jpedsurg.2020.05.015.

6. Holmen H; Larsen MH, Sallinen MH, Thoresen L, Ahlsen B, Andersen MH, Borge CR, Eik H, Wahl AK, Mengshoel AM. En balansegang: helsepersonells erfaringer med mennesker med kronisk sykdom - en oversiktsartikkel av kvalitative studier. Best Practice Nordic 2020 (1)OSLOMET, Ui0.

7. Larsen MH, Strumse YS, Borge CR, Andersen MH, Osborne R, Wahl AK. Relevant associations between alexithymia and health -literacy in persons with psoriasis. Journal of Dermatological Treatment 2020 DOI 10.1080/09546634.2020.1756204, PubMed 32286098.

8. Holmen H, Borge C, Larsen MH, Wahl AK, Mengshoel AM, Andersen MH, Thoresen L, Ahlsen B. Working with patients suffering from chronic diseases can be a balancing act for health care professionals - a meta-synthesis of qualitative studies. BMC Health Serv Res 2020, 20 (1), 98. DOI 10.1186/s12913-019-4826-2, PubMed 32039723.

9. Larsen MH, Strumse YS, Andersen MH, Borge CR, Osborne R & Wahl AK
Associations between disease education, self-management support and health literacy in psoriasis. Journal of Psoriasis Treatment 2019 Nov 22:1-7. Doi: 10.1080/09546634.2019.1688233.

10. Dahl K, Andersen MH, Urstad KH, Engebretsen E, Wahl A. Identifying core variables associated with health literacy in kidney transplant recipients. Prog Transplant. 2020; 30(1):38-47. doi: 10.1177/1526924819893285. 2020.

11. Aqrawi LA, Chen X, Hynne H, Amdal C, Reppe S, Aass HCD, Rykke M, Hove LH, Young A, Herlofson BB, Westgaard KL, Utheim TP, Galtung HK, Jensen JL (2020) Cytokines Explored in Saliva and Tears from Radiated Cancer Patients Correlate with Clinical Manifestations, Influencing Important Immunoregulatory Cellular Pathways Cells, 9 (9) DOI 10.3390/cells9092050, PubMed 32911805

12. Hauge T, Amdal CD, Falk RS, Johannessen HO, Johnson E (2020) Long-term outcome in patients operated with hybrid esophagectomy for esophageal cancer - a cohort study Acta Oncol, 59 (7), 859-865 DOI 10.1080/0284186X.2020.1750694, PubMed 3232407914.

13. Støtmer, Une Elisabeth; Wahl, Astrid Klopstad; Gøransson, Lasse; Urstad, Kristin Hjorthaug.
Exploring health literacy in patients with chronic kidney disease: a qualitative study. BMC Nephrology 2020 ;Volum 21. s. 1-9 SUS UiB UiO UIS

14. Stømer, Une Elisabeth; Wahl, Astrid Klopstad; Gøransson, Lasse; Urstad, Kristin Hjorthaug.
Health literacy in kidney disease: associations with quality of life and adherence. Journal of Renal Care 2020 ;Volum 46.(2) s. 85-94 SUS UiB UiO UIS

15. Wahl, Astrid Klopstad; Bondevik, Hilde. Mellom livserfaring og fagkunnskap under behandling med cellegift. Tidsskrift for Den norske legeforening 2020 (14) UiO

16. Ljoså, Tone Marte; Bondevik, Hilde; Halvorsen, Jon Anders; Carr, Eloise; Wahl, Astrid Klopstad.
The Complex Experience of Psoriasis Related Skin Pain: A Qualitative Study. Scandinavian Journal of Pain 2020 ;Volum 20.(3) s. 491-498 USN UiO

17. Løyland, Borghild; Dahl, Espen; Wahl, Astrid Klopstad; Lødemel, Ivar; van der Wel, Kjetil A.; Hermansen, Åsmund; Bråthen, Magne; Heggebø, Kristian.
Sluttrapport Prosjekt 12/2243 - Arbeidsinkludering, Utdanning eller velferdsytelser. Hvordan har det gått med personer som var langtidsmottakere av sosialhjelp i 2005?. Oslo: Prosjektgruppa i samarbeid med Kunnskapsavdelingen i Arbeids og Velferdsdirektoratet 2020 32 s.
OSLOMET NTNU UiO

18. Løyland, Borghild; Hermansen, Åsmund; Dahl, Espen; Wahl, Astrid Klopstad. Differences in income trajectories according to psychological distress and pain - A longitudinal study among Norwegian social assistance recipients. Scandinavian Journal of Public Health 2020 OSLOMET UiO

19. Brørs, Gunhild; Wentzel-Larsen, Tore; Dalen, Håvard; Hansen, Tina B; Norman, Cameron D.; Wahl, Astrid Klopstad; Norekvål, Tone M. Psychometric properties of the norwegian version of the electronic health literacy scale (eheals) among patients after percutaneous coronary intervention: Cross-sectional validation study. Journal of Medical Internet Research 2020 ;22:. 1-16 Haukeland HNT NKVTS NTNU RBUP-ØS STO UiB UiO

20. Langeland W, Jepsen EKK, Brand BL, Kleven Linn The economic burden of dissociative disorders: A qualitative systematic review of empirical studies 2020 Psychological Trauma Theory Research Practice and Policy 12(7) DOI: 10.1037/tra0000556

21. Astrup GL, Hofsø K, Bjordal K Rustøen T. Cancer patients' diagnosis and symptoms and their family caregivers' self-efficacy and social support are associated with different caregiver reactions European Journal of Cancer Care https://doi.org/10.1111/ecc.13311

22. Cardoso F, Cameron D, Astrup GL et al. An international update of the EORTC questionnaire for assessing quality of life in breast cancer patients: EORTC QLQ-BR45. Annals of Oncology 2020 https://doi.org/10.1016/j.annonc.2019.10.027

Forskningsgruppe: Nevroendokrine svulster

Research group: Neuroendocrine tumors

Avdeling: Department for organ transplantation

Gruppeleder: Espen Thiis-Evensen

Om gruppen:
Består av personer med interesse for nevroendokrine neoplasmer, hovedsakelig fra avdelinger som involvert i utredning, diagnostikk og behandling av nevroendokrine neoplasmer ved Oslo universitetssykehus

About the group:
Består av personer med interesse for nevroendokrine neoplasmer, hovedsakelig fra avdelinger som involvert i utredning, diagnostikk og behandling av nevroendokrine neoplasmer ved Oslo universitetssykehus

Hovedmedlemmer / Main members:

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Brit Dybdahl	Overlege	OUS	UXBRDY@ous-hf.no
Håvard Bjørke Jenssen	LIS/ phd student	OUS	haajen@ous-hf.no

Aktivitet i 2020 / Activity in 2020:

Projects ongoing or finished in 2020:

1. Explain-study. Nordic study evaluating multiple tumor markers . Included 26 patients. Manuscript no 2. in preparation

2. Evaluation of the treatment effect of the chemotherapy combination temozolomide/capecitabine5FU. Study started, data are compiled. 103 patients included.

3. Quality of life in patients with small intestinal tumors. Protocoll being prepared

4. The feasibility and outcome of D3-resection in patients with small intestinal tumors. Cooperation with Akershus University Hospital. Ongoing inclusion, so far 19 patients included.

5. *Prevalence and incidence of neuroendocrine neoplasms in Norway*. Data collected, data analyses in preparation

6. *Antibody response to SARS- CoV-2 vaccine in patients with neuroendocrine neoplasms*. Data are being collected

7. *Radiofrequence ablation of pancreatic neuroendocrine tumors.* Protocoll being prepared

4*. Prognostic factors for development of disseminated disease in appendiceal neureondocrine* tumors. Multinational study. Data collected. 4 patients included

5. The importance of serum concentration level of everolimus for treatment effect and occurrence of adverse events in treatment of patients with neuroendocrine tumors. Patients being included

6. An Open-Label Phase 2 Study of Surufatinib in Patients with Neuroendocrine Tumours in Europe. Inclusion planned August-21

Other

Establishment of a new patient ebiobank.

Publikasjoner/ Publications

1.Thiis-Evensen E, Poole AC, Nguyen HT, Sponheim J. Achieving objective response in treatment of non-resectable neuroendocrine tumors does not predict longer time to progression compared to achieving stable disease. *BMC Cancer*. 2020;20(1):466. Published 2020 May 24. doi:10.1186/s12885-020-06963-6

2. Sorbye, H., Meyer, L.S., Mordal, K.E. Thiis-Evensen E. Patient reported symptoms, coping and quality of life during somatostatin analogue treatment for metastatic small- intestinal neuroendocrine tumours. Health Qual Life Outcomes 18, 188 (2020). https://doi.org/10.1186/s12955-020-01452-7

3. Kjellman M, Knigge U, Welin S, Thiis-Evensen E, Gronbæk H, Schalin-Jäntti C, Sorbye H, Joergensen MT, Johanson V, Metso S, Waldum H, Søreide JA, Ebeling T, Lindberg F, Landerholm K, Wallin G, Salem F, Schneider MDP, Belusa R. A plasma protein biomarker strategy for detection of small intestinal neuroendocrine tumors. Neuroendocrinology. 2020 Jul 28. doi: 10.1159/000510483. Epub ahead of print. PMID: 32721955.

Department of Urology
(URO)

- Prostatakreft/ Prostate Cancer
- Infeksjon og inflammasjon i urologi/ Infections and inflammation in urology

Forskningsgruppe: Prostatakreft

Research group: Prostate Cancer

Avdeling: Urologisk avdeling

Gruppeleder/groupleader: Viktor Berge

Om gruppen:

Forskningsgruppen i prostata kreft består av urologer og onkologer (hovedmedlemmer) og leger og basalforskere fra andre avdelinger og institutter (assosierte medlemmer), engasjert i prostata kreft forskning ved Oslo Universitets sykehus. Hovedområdet i klinisk forskning er utkomme studier og livskvalitets studier etter primær behandling og salvage behandling av prostata kreft. Et annet viktig område er studier av nye diagnostiske metoder og fokal behandling av prostata kreft.
Hovedområdet i translasjonsforskning som gruppen er involvert i, er deteksjon og validering av nye potensielle biomarkører i tumorvev, blod og urin. Siktemålet med denne aktiviteten er reduksjon av overdiagnostikk og overbehandling, forbedring av diagnostikk og bedre behandling av høy risiko kreft

About the group:

The Research group of prostate cancer consists of urologists and oncologists (main members) and physicians and scientists from other departments and institutes (associated members), engaged in prostate cancer research at Oslo University Hospital (OUH). Main topic of clinical research is new diagnostic methods, outcomes studies and Quality of Life studies after primary treatment and salvage treatment of prostate cancer.
The main aims for our translational research are detection and validation of new putative biomarkers in tumor tissue, blood and urine. This effort focuses on achieving a more personalized treatment of patients, in order to reduce overdiagnosis and overtreatment of prostate cancer, but also to improve diagnosis and treatment of high-risk prostate cancer.

Main members: NAME	**POSITION/TITLE/ROLE**	**EMPLOYER/AFFILIATION**	**E-MAIL**
Viktor Berge	Group leader / Ass. professor, consultant in urology	OUS and UiO	vikber@ous-hf-no
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Associated members: NAME	**POSITION/TITEL/ROLE**	**EMPLOYER/AFFILIATION**	**E-MAIL**
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Eivor Hernes	PhD, consultant in nuclear medicin		

Aktivitet i 2020 / Activity in 2020:

-Movember Unique Prostate Cancer Tissue Microarray Resource was finally opened. Viktor Berge is sitting on the board. This repository is located at Johns Hopkins Hospital, Baltimore, US and our biobank at OUH has contributed in establishing this unique project which is open for application for researchers all over the world.

-Biobank and Register for prostate cancer (here called Register) continue to improve its quality of data. During last year we established collaboration with clinical laboratories for better access of follow-up PSA values for patients after radical prostatectomy.

-Our group arranged meetings for prostate cancer surgeons (RALP surgeons) at the Dep of Urology, OUH and for "Kreftstyret" at OUH, in order to present the Register. This research registry is well suited for improving the quality of prostate cancer surgery since it contains both oncological and QoL results for each operating surgeon.

- A medical student is writing his "projektoppgave" about RALP patients operated with concomitant Pelvic Lymph Node Dissection (PLND)

- A study group has been started which will look into outcome data from the Register. The aim of the project is to compare RALP in men ≥ 70 years and < 70 years with regard to postoperative complications/length of hospital stay, urinary incontinence and erectile dysfunction.

-Our PhD student Kirsti Aas submitted her PhD thesis for defense in February 19, 2021.

-Two main members of the group are currently PhD students combined with residency in urology.

-Our collaboration in translation research with Queen University and Almac, Belfast, continue to pay off:

- We received the ClaraT-report from Almac about lymphnode metastasis/New Tissue Micro Array (TMA)-Almac was produced/Two new projects have got access to the Almac material

- The SPCG-17 project (Active surveillance of prostate cancer) is recruiting well

- The Transperineal prostate biopsy project is recruiting well. This project is collaboration with Berlin and so far 400 patients from OUH and 150 patients from Berlin are recruited to this trial which randomize between antibiotics or not in patients having transperineal prostate biopsy.

-Main members of our group have authored or coauthored 13 publications about prostate cancer during 2020

- There has been no meeting for the whole group during 2021, but over 20 project meetings

Research group: Infections and inflammation in urology

Department: Urology

Group leader: Truls E. Bjerklund Johansen

About the group:

The group represents a wide international research network of urologists, urology departments, universities, medical societies as well as physicians from related fields of medicine. The group overlaps with the European Section of Infections in Urology, a full section of the European Ass. of Urology. Our vision is to provide evidence-based answers to all relevant knowledge gaps in the field of genitourinary tract infections that has real-life impact on patients. Our mission is to build a sustainable, transparent, independent international research network capable to identify, design, organize and run research projects which target real life knowledge gaps related to urinary tract infections. Our strategic plan is to develop a full functional research network with adequate resources for long-term maintenance and development.
Link to the UiO webpage of our research group

Main members:

NAME	POSITION/TITLE/ROLE	EMPLOYER/AFFILIATION	E-MAIL
Truls E. Bjerklund Johansen	Group leader / professor	Oslo University Hospital	tebj@uio.no
Bela Koves	Member/ ass. professor	Budapest, Hungary	bkoves@gmail.com
Florian Wagenlehner	Member/ professor	Giessen, Germany	Florian.Wagenlehner@chiru.med.uni-
Knut Kvernebo	Member/ professor em	Oslo University Hospital	knut.kvernebo@medisin.uio.no
Jakhongir Alidjanov	Member/ postdoc	Giessen, Germany	dr.alidjanov@gmail.com
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Per-Henrik Zahl	Member/ lead statistician	Public Health Institute,	PerHenrik.Zahl@fhi.no
Tommaso Cai	Member/ consultant	Trento, Italy	ktommy@libero.it
Zafer Tandogdu	Member/ consultant	UCLH, London, UK	drzafer@gmail.com

Associated members:

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Adrian Pilatz	Ass. Member/ consultant	Giessen, Germany	Adrian.Pilatz@chiru.med.uni-giessen.de
Ekaterina Kulchavenya	Ass. Member/ professor	Novosibirsk, Russia	ku_ekaterina@mail.ru
Gernot Bonkat	Ass. Member/ professor	Basel, Switzerland	Bonkat@alta-uro.com
Kurt Naber	Ass. Member/ professor	Munich, Germany	kurt.naber@nabers.de
Mete Cek	Ass. Member/ professor	Edirne, Turkey	metecek@gmail.com
Peter Tenke	Ass. Member/ professor	Budapest, Hungary	tenke.peter@jahndelpest.hu
Riccardo Bartoletti	Ass. Member/ professor	Pisa, Italy	riccardo.bartoletti@hotmail.com
Tamara Perepanova	Ass. Member/ professor	Moscow, Russia	perepanova2003@mail.ru

Activity in 2020:

All our studies are based upon the annual Global Prevalence study on Infections in Urology, which is being run in about 130 countries and numerous side studies ie the SERPENS study on urosepsis, the GPIU.com study on cystitis and the GPIU side study on infective complications after prostate biopsy. SERPENS is the world`s largest study on urosepsis and results are due I 2021. The study focuses on risk factors, diagnostic criteria, disease course, mortality and post-sepsis morbidity. Results published by the group in 2020 and results that will be published in 2021, have led to a change in international guidelines recommendations on prostate biopsies. In 2020 the group has contributed with numerous publications related to Covid and to the diagnosis and follow-up of cystitis by means of a new symptom-score (ACSS) which is already approved by FDA. The group provides open access to research data on inflammation and infection in urology through its living textbook at http://books.publisso.de/publisso_gold/book/52

Selected publications by group members in 2020

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Research Institute for Internal Medicine (IMF)

- Immunregulering i aterosklerose og andre kardiometabolske sykdommer
- Inflammasjonsmarkører for hjertekar- og metabolske sykdommer / Inflammatory Biomarkers in Cardiovascular and Metabolic Disease
- Eksperimentell leverforskning / Experimental hepatology (NoPSC)
- Inflammasjonssykdommers genomikk og metagenomikk / Genomics and metagenomics in inflammatory diseases (NoPSC)
- Immunopathogenetic mechanisms in immunodeficiency and infectious disorders

Forskningsgruppe: Immunregulering i aterosklerose og andre kardiometabolske sykdommer

Research group: Immune regulation in atherosclerosis and other cardio metabolic diseases

Avdeling: Institutt for Indremedisinsk Forskning

Gruppeleder: Bente Halvorsen

Om gruppen:
Det seneste året har de to forskningsgruppene «Aterosklerose og relaterte metabolske sykdommer» og «Immunologiske og molekylære mekanismer i myokard remodellering og hjertesvikt» ved instituttet fusjonert til en større gruppe som igjen er inndelt i mindre prosjektgrupper.

Vårt overordnede fokus i forskningen er på kardiovaskulær sykdom og relaterte metabolske sykdommer som diabetes, fedme og fettlever som er viktige årsaker til sykelighet og død over hele verden. Mer konkret er aterosklerose en tilstand som karakteriseres ved en kronisk inflammatorisk fenotype, mens hjerteinfarkt og hjerneslag, de direkte konsekvensene av aterosklerose, er akutte inflammatoriske tilstander. Disse lidelsene har mange fellestrekk, som for eksempel dyslipidemi og inflammasjon. Ved å studere disse prosessene ved hjelp av translasjonsforskning, der vi forbinder basal forskning og klinikk, ønsker vi å bygge et fundament for utvikling av ny diagnostikk og behandling for disse sykdommene. Vår forskningsgruppe arbeider i krysningen mellom molekylærbiologi og biokjemi, og kardiovaskulær, cerebrovaskulær og endokrin medisin. Vårt overordnede mål er å avdekke nye terapeutiske mål og biomarkører. Gruppen bruker et bredt spekter av metoder, alt fra analyser av blod og vevsprøver fra pasienter, til studier i genetisk modifiserte mus ved hjelp av avansert celle- og molekylærbiologi. Gruppen består av personer med forskjellig bakgrunn og inkluderer leger, ernæringsfysiologer, biokjemikere, molekylærbiologer og ingeniører. Den tverrfaglige kompetanse er en stor styrke i vår forskningsgruppe.

About the group:
In the past year, the two research groups «Atherosclerosis and related metabolic disorders» and «Immunological and molecular mechanisms in myocardial remodeling and heart failure» at the institute have merged into a larger group which in turn is divided into smaller project groups.

Our overall focus in is on cardiovascular disease and related metabolic diseases such as diabetes, obesity and fatty liver which are major causes of morbidity and mortality worldwide. More specifically, atherosclerosis is a condition characterized by a chronic inflammatory phenotype, while myocardial infarction and stroke, the direct consequences of atherosclerosis, are acute inflammatory conditions. These disorders

have many common features, such as dyslipidemia and inflammation. By studying these processes using a translational approach, where we connect basic research and clinic, we want to build a foundation for the development of new diagnostics and treatment for these diseases. Our research group works at the intersection between molecular biology and biochemistry, and cardiovascular, cerebrovascular and endocrine medicine. Our overall goal is to uncover new therapeutic goals and biomarkers. The group uses a wide range of methods, ranging from analysis of blood and tissue samples from patients, to studies in genetically modified mice using advanced cell and molecular biology. The group consists of people with different backgrounds and includes doctors, nutritionists, biochemists, molecular biologists and engineers. This interdisciplinary competence is a great strength of our research group.

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Aktivitet i 2020 / Activity in 2020:

As for all other parts of society, also our research has been highly affected by the Covid-19 pandemic. We have been fortunate to be able to maintain activity in the lab throughout this challenging situation, but some of our projects have been suffering, as we allocated people to the collection and biobanking of clinical materials from Covid-19 patients from several hospitals in Norway. We are involved in the analysis of NorSolidarity study, the Norwegian part of the WHO-initiated treatment study of Covid-19 patients, where sequencing and metabolic mapping of the patients are key tasks for personnel in our group. Moreover, the biobank with material for further analysis of follow-up and complications in critically ill Covid-19 patients will in the coming years prove to be valuable for further understanding of the pandemic.

Despite much focus and effort has been dedicated to these tasks, we have also been able to pursue our regular research ranging from work on human mutations in the Sigirr genes, the role of complement in atherosclerosis, and deciphering the role of ENDOV. Below are listed some of our main projects in 2020:

Methodology We are constantly seeking to expand our methodology repertoire. During the last year, a focus in our research group has been on establishing an in-house workflow for analysis of complex multi-omic data. Include both the infrastructure and the competence to perform advanced bio-informatic analyses. We performed several different large-scale analyses on both human and murine samples, such as RNA sequencing, mass spectrometry and bisulfite sequencing. The major goal is to be able to integrate the generated data in a useful manner.

T cells in obesity We investigate T cell function in metabolic regulation during obesity development to seek new treatment options. T cells can modulate macrophage function and adipocyte differentiation, which affects energy storage and utilization, leading to healthy or dysregulated metabolism. In 2020 we have performed several advanced animal studies leading us closer to pinpoint important mechanisms of how T cells affect whole body metabolism.

NLRP3 inflammasome The NLRP3 protein is essential for inflammasome formation and inflammation itself. In 2020 we published 2 articles in relation to NLRP3, both products of our long-term research on this protein. The first revealed the role NLRP3 plays in cardiac remodeling after a myocardial infarction. The second article supported a role for NLRP3 in the interface between metabolic and inflammatory stress, involving an altered gut microbiota composition.

The role of DNA repair enzymes in atherogenesis Recently we showed that Neil3, a DNA glycosylase, modulates vascular smooth muscle cell proliferation and transdifferentiation. This is a vital feature in atherogenesis, suggesting that Neil3 might have an important role in atherosclerosis development, possibly independent of its role as a DNA repair enzyme. Moreover, we are exploring role of the enzyme Mutyh in atherosclerosis development and metabolic disturbances in a similar manner as for Neil3. The main finding so far is that Mutyh is involved in maintaining metabolic homeostasis in mice. Furthermore, vascular cells lacking Mutyh are more prone to acquire a pathological phenotype, possibly due to genomic instability.

EU- projects We actively participating in two EU projects. The first, *AtheroMacHete*, aims to decipher the heterogeneity of macrophages in atherosclerotic plaques and to determine different functions of the cell types their contribution to disease development. The second project, *PainFact*, has the objective to investigate the connection of chronic pain, pain sensitivity and development of cardiovascular disease. In 2020 we contributed with methodological development as well as piloting animal studies in these projects.

Forskningsgruppe: Inflammasjonsmarkører for hjertekar- og metabolske sykdommer

Research group: Inflammatory biomarkers in cardiovascular and metabolic disease

Avdeling: Institutt for Indremedisinsk Forskning / Research institute of internal medicine

Gruppeleder: Thor Ueland, Group Leader, Research Scientist; PhD

About the group:

Many disease states are associated with low-grade chronic inflammation that may result in detectable changes in inflammatory proteins that can be measured in biological fluid such as serum and plasma, making them valuable biomarkers. Measurement of these biomarkers may be therefore be useful for detecting diseases before they present and/or offer information on the mechanisms of disease, they may represent treatment targets or be helpful in evaluating treatment responses and predicting outcomes.

Our research focuses on measurement and use of inflammatory markers in different populations characterized by low-grade systemic inflammation focusing on cardiovascular disease and risk, neuropsychiatric disorders, and metabolic endocrine disease.

We have a close collaboration with the department of cardiology and analyzing inflammatory markers in blood and tissue in well characterized cross-sectional cohorts and clinical trials in patients with heart failure, acute coronary syndromes and aortic stenosis. In these studies we evaluate biomarkers, reflecting a wide range of inflammatory processes, as predictors of adverse outcome and treatment responses. A focus in these studies is investigating the impact of Wnt signaling and secreted Wnt antagonist in these conditions.

We have a close collaboration with the endocrine unit, analyzing inflammatory markers in patients characterized by growth hormone deficieny (GHD) and excess (acromegaly) as well as gluccocorticoid excess (Cushing syndrome). We also have a tight collaboration with the women and children center evaluating the impact of systemic inflammation in pregnancy on future cardiovascular and metabolic risk. These studies investigate the association between hormones and inflammatory mediators and impact on metabolic disturbances in different target tissues such as adipose tissue and bone with special focus on glucose metabolism.

We have a tight collaboration with the Psychosis Research Centre Thematically Organized Psychosis Research (TOP) group, analyzing inflammatory biomarkers in

patients with schizophrenia and bipolar disorder. In these studies we focus on markers in serum/plasma as well as mRNA levels in circulating immune cells that may reflect neuroinflammation and further, investigate associations with immune-related candidate risk genes within the major histocompatibility complex, identified by genome-wide association studies (GWAS).

In addition, we have strong collaborations with other clinical research, national and international.

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Aktivitet i 2020 / Activity in 2020:

35 publications from main group members in 2020

COVID19 hit early in 2020 so a lot of activity focused on analysis of samples from these patients resulting in 6 quick publications

Selected articles for 2020:

1: Lekva T, Gullestad L, Broch K, Aukrust P, Andreassen AK, Ueland T. Distinct patterns of soluble leukocyte activation markers are associated with etiology and outcomes in precapillary pulmonary hypertension. Sci Rep. 2020 Oct 29;10(1):18540.

2: Ueland T, Heggelund L, Lind A, Holten AR, Tonby K, Michelsen AE, Jenum S, Jørgensen MJ, Barratt-Due A, Skeie LG, Nordøy I, Aanensen Fraz MS, Quist-Paulsen E E, Pischke SE, Johal SK, Hesstvedt L, Bogen M, Fevang B, Halvorsen B, Müller F, Bekken GK, Mollnes TE, Dudman S, Aukrust P, Dyrhol-Riise AM, Holter JC. Elevated plasma sTIM-3 levels in patients with severe COVID-19. J Allergy Clin Immunol. 2021 Jan;147(1):92-98.

3: Arain F, Abraityte A, Bogdanova M, Solberg OG, Michelsen AE, Lekva T, Aakhus S, Holm S, Halvorsen B, Finsen AV, Vinge LE, Nymo S, Espeland T, Ranheim T, Aukrust P, Vaage IJ, Auensen A, Gullestad L, Ueland T. YKL-40 (Chitinase-3-Like Protein 1) Serum Levels in Aortic Stenosis. Circ Heart Fail. 2020 Oct;13(10):e006643.

4: Ueland T, Holter JC, Holten AR, Müller KE, Lind A, Bekken GK, Dudman S, Aukrust P, Dyrhol-Riise AM, Heggelund L. Distinct and early increase in circulating MMP-9 in COVID-19 patients with respiratory failure. J Infect. 2020 Sep;81(3):e41-e43.

5: George MJ, Kleveland O, Garcia-Hernandez J, Palmen J, Lovering R, Wiseth R, Aukrust P, Engmann J, Damås JK, Hingorani AD, Gullestad L, Casas JP, Ueland T. Novel Insights Into the Effects of Interleukin 6 Antagonism in Non-ST-Segment-Elevation Myocardial Infarction Employing the SOMAscan Proteomics Platform. J Am Heart Assoc. 2020 Jun 16;9(12):e015628.

6: Ueland T, Estensen ME, Grindheim G, Bollerslev J, Henriksen T, Aukrust P, Aakhus S, Gullestad L, Lekva T. Elevated levels of the secreted wingless agonist R-spondin 3 in preeclamptic pregnancies. J Hypertens. 2020 Jul;38(7):1347-1354.

7: Lekva T, Sugulle M, Moe K, Redman C, Dechend R, Staff AC. Multiplex Analysis of Circulating Maternal Cardiovascular Biomarkers Comparing Preeclampsia Subtypes. Hypertension. 2020 Jun;75(6):1513-1522.

Forskningsgruppe: Eksperimentell leverforskning

Research group: Experimental hepatology

Avdeling: Norsk senter for PSC / Institutt for indremedisinsk forskning

Gruppeleder: Espen Melum

Om gruppen:
Hovedmålet med forskningen i gruppen er å forstå mekanismer som regulerer betennelse i gallegangene med fokus på immunologi. I tillegg driver vi basal forskning relatert til funksjonen til natural killer T-celler og mucosal associated invariant T (MAIT)-celler. I 2020 etablerte vi også et forskningsprogram som bruker organoider og organ-on-a-chip teknologi.

About the group:
The main aim of our research is to understand mechanisms regulating cholangitis with a clear focus on immunology. In addition to the cholangitis focused studies, we are also doing basic research related to the function natural killer T-cells and mucosal associated invariant T (MAIT)-cells. In 2020 we also established a research program using organoids and organ-on-a-chip systems.

Hovedmedlemmer / Main members:

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Aktivitet i 2020 / Activity in 2020:

The experimental liver research group is focusing on experimental and translational studies related to primary sclerosing cholangitis (PSC). The group represents one of the three research group at the Norwegian PSC research center. Our laboratory activities take place at the Research institute of Internal Medicine. In 2020, the group consisted of the group leader, two senior researchers, two postdocs, four PhD students, the lab manager and one part-time technician. The main aim of our research is to understand mechanisms regulating cholangitis with a clear focus on immunology and the interaction of the immune system with the microbiome. Recently, we have also started to incorporate aspects of regenerative medicine. Our tools to achieve this aim is to use patient material, animal models, advanced cell-culture in terms of organoid technology and recently organ-on-a chip systems.

During the last years one of our major lines of research has been to clarify the regulatory role of unconventional T-cells in bile duct inflammation and in 2020 we published a report demonstrating the presence of antigens activating natural killer T (NKT)-cells in bile. Similarly, we also demonstrated in another project that antigens for mucosal associated invariant T (MAIT)-cells are also present in bile and are defined by the microbiome. Extensive animal experiments clarifying the role of NKT-cells during cholestasis were also performed in 2020 focusing on CD1d on the bile duct epithelium and the contribution of type 1 vs type 2 NKT cells. Another major topic of our immunology studies has been the role of CD100, which we have found to regulate cholangitis in a familiar form of PSC, and in 2020 we have expanded our molecular understanding on how CD100 affect immunological function. In our studies using germ-free animals we have continued the work on clarification on how the timing of introduction of the microbiome affects the development of bile duct inflammation in the NOD.c3c4 model that we have previously shown to be partly dependent upon the presence of bacteria. We have also performed ground-work using in vitro studies on metabolites in fecal material that will form the basis for in vivo mechanistic studies in 2021.

In 2020 we also generated the first prototypes for a bile duct on a chip together with the rest of the team at the center of excellence Hybrid-technology-hub. This work was facilitated by the recruitment of Anna Frank as a Scientia Fellows postdoc that will work on the collaborative projects between the Norwegian PSC research center and the Hybrid technology hub. We also continued research on the basic properties of organoids by doing single-cell sequencing of cholangiocyte organoids generated from brushings of the bile ducts from patients with PSC. As part of the expansion on the activities related to organoids, senior researcher Kari Otterdal has also been engaged in this project.

Our RNA-based sequencing technology approaches were also expanded in 2020 with the establishment of spatial sequencing, which will be used by several projects in the experimental hepatology group and also by other projects at NoPSC. Jonas Øgaard, who has been in the group for several years as a technician, started his master project where he will investigate the spatial and temporal transcriptomic landscape of cholestasis using this technology.

Forskningsgruppe: Inflammasjonssykdommers genomikk og metagenomikk

Research group: Genomics and metagenomics in inflammatory diseases

Avdeling: Institutt for indremedisinsk forskning / Research institute of internal medicine (and Norwegian PSC Research Center, Department of Transplantation Medicine)

Gruppeleder: Johannes R. Hov, j.e.r.hov@medisin.uio.no

Om gruppen:

Forskningsgruppen studerer i hvilken grad tarmfloraen påvirker kroniske betennelsessykdommer. Vi studerer tarmfloraen særlig ved hjelp av genetiske (sekvensering) og biokjemiske (metabolittundersøkeleser) metoder, og benytter tverrsnittsstudier, oppfølgingsstudier og behandlingsforsøk. Hovedmålet er å lete etter sykdomsårsaker, men med et særlig fokus på å etablere klinisk tarmfloramedisin som et eget felt med vekt på biomarkører og behandling. I 2020 har vi også vært involvert i flere studier knyttet til Covid-19, spesielt rettet mot genetiske risikofaktorer.

About the group:

The research group is studying the influence of the gut microbiome on inflammatory diseases. We use genetic and metabolomic methods, and cross-sectional, longitudinal and interventional designs. The main aims are to identify causes of diseases and to establish microbiota medicine as a clinical field with an emphasis on biomarkers and therapy. In 2020 we were also involved in Covid-19-related research, with a particular focus on genetic risk factors.

Hovedmedlemmer / Main members:

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Aktivitet i 2020 / Activity in 2020:

The year of 2020 has to some degree been affected by the Covid-19 situation, but sometimes in surprising ways. Initially, lockdown of lab activities caused delays, but after opening we suddenly experienced lack of kits (factory prioritized covid reagens) or pipette tips (obvious reasons). But most projects have had reasonable progress and less time has been spent on travel. Notable milestones this year in our group and the closely integrated Trøseid groups have been:

- M.Sc. Beate Vestad and M.D. Magnhild Eide MacPherson, both associated members of the group defended their theses entitled "Gut microbiota, extracellular vesicles and comorbidities in HIV infection; Exploring the drivers of metabolic disease risk and microbe-host crosstalk" and "Gut microbiota, lipid metabolism and systemic inflammation in common variable immunodeficiency - A translational research approach», respectively.
- Our first shotgun metagenome project in PSC was finally published end of 2020 at very high level in Gastroenterology. The project was a collaboration with Andre Franke's group in Kiel. The study identified major metabolic alterations in patients with this disease, in particular related to essential nutrients like some B vitamins and amino acids. This work is a crucial basis for the further investigation of recurrent PSC in the StopAutoimmunity project. The project has now entered a phase where we are also interested in doing experimental assessments to understand effects and mechanisms.
- In inflammatory bowel disease, sample preparations have been ongoing for thousands of sample from the large population-based IBSENIII study, where modern metagenomics and machine-learning methodology will be utilized.
- A notable deviation from the main activity was the extensive efforts invested in an international collaboration on the genetic susceptibility to severe Covid-19 infection with respiratory failure, culminating in a paper in New England Journal of Medicine in June 2020. The effort was spearheaded by NoPSC leader Tom H Karlsen and involved clinicians and scientists in Spain, Italy, Germany and Norway.
- In addition, a large number of people are working on projects within the general framework outlined above (including autoimmunity in PSC, tissue transcriptomics, molecular aspects of the GPR35 receptor, further work in HIV and more), with clinical translation as one the most important goals.

Other important events and networking.

- Despite the covid-19 situation, the Regional research network for clinical microbiota Science (ReMicS) has been running smoothly with online based activities (www.microbiota.no), administrated by Hanne Guldsten. Our planned network retreat was unfortunately cancelled Spring 2020, but we were able to organize the 7th National microbiota conference as an online streaming event in November 2020, with the highest ever number of participants (>100).
- The Strategic research area of Oslo University Hospital – "Personalized microbiota therapy in clinical medicine" hired an expert in fecal microbiota transplantation in part time position and with this we have gained significant momentum towards our goal in this area.

Research group: Immunopathogenetic mechanisms in immunodeficiency and infectious disorders

Avdeling: Research Institute for Internal Medicine

Gruppeleder: Børre Fevang, MD, PhD

About the group: The research group focus on immunopathogenesis in primary and secondary immunodeficiency such as Common variable immunodeficiency (CVID) and HIV and selected infectious diseases, in particular the study of chronic inflammation characterising these disorders. The aim is to improve the understanding of disease mechanisms and to discover new targets for therapeutic intervention. The group works in a translational setting combining close contact to the clinic, in particular Section of Clinical Immunology and Infectious Diseases at OUS, with access to a wide range of immunological methods through extensive collaboration with other groups

Hovedmedlemmer / Main members:

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Aktivitet i 2020/ Activity in 2020:

The group is currently working with several projects, including:

- Immunopathogenic mechanisms in CVID – a disease model for autoimmunity and persistent inflammation. Our group has for a long time used primary immunodeficiency in the form of CVID as a model for studying the immune system. In recent years we have been focusing on the interaction between gut microbiota, gut mucosa and local (intestinal) and systemic inflammation. Magnhild Eide Macpherson has defended her PhD thesis that includes both the modulation of gut microbiota with rifaximin in CVID-patients and an exciting investigation into the anti-inflammatory effect of HDL in the same patients. This latter work is extended into a Post doc project for Silje Fjellgård Jørgensen that started up in 2019 and will include in-depth studies of epigenetic changes in gut mucosa from CVID-patients. We have started a new project focusing on granulomatous-lymphocytic interstitial lung disease (GLILD) in CVID where Mai Sasaki Aanensen Fraz has looked into differences between patients with stable and progressive disease. This project will include collaboration with several Nordic centers with our research group leading the network.
- Targeting the NLRP3 inflammasome in HIV infection. The research institute has a strong track record on HIV-research and this continues with Hedda Hoel's PhD project that looks at the NLRP3 inflammasome as a driving force of the systemic inflammation seen in HIV-infected patients. The NLRP3 inflammasome has been studied in cardiovascular disease by other groups at our institute, and the current project is an excellent example of how immunological insight gained from the study of one disease can be applied to new diagnoses. The project is led by Marius Trøseid who is also the main supervisor.
- Functional consequences of novel genetic variations in primary immunodeficencies and immune dysregulation (FUNPID). High-throughput sequencing has revolutionized the diagnostics of primary immunodeficiencies, giving a definite genetic diagnosis in complicated clinical cases. However, novel genetic variations of uncertain significance tend to show up and in close collaboration with established partners at Oslo University Hospital and the University of Oslo we have established a research-based diagnostic pipeline for these patients. These findings give us an extraordinary opportunity to characterize both new disease entities and new immunologic mediators. We are currently looking into a family with a possible gain-of-function mutation in IL-1R8.