

# Fact Sheet Research

2021



## LMU Faculty of Medicine

The Faculty of Medicine and the University Hospital of Ludwig-Maximilians-Universität in Munich (LMU) are among Europe's leading centers of scholarly medicine. The university is connected to milestones and persons of the history of medicine: Wilhelm Conrad Röntgen (x-rays), Alois Alzheimer (neurodegenerative dementia), Max von Pettenkofer (hygiene), Adolf Friedrich Johann Butenandt (sexual hormones) and Feodor Lynen (cholesterol synthesis).

The faculty is member of all six German Centers for Health Research (cancer research, lung research, infection research, cardiovascular research, diabetes research and neurodegenerative diseases research). These centers reflect the foci of medical research that are actively pursued in Munich, from the basic preclinical and clinical disciplines to rare diseases research. As part of the national program for excellence the faculty hosts the Munich Cluster for Systems Neurology. The faculty is speaker of six nationally supported Collaborative Research Centers ("Sonderforschungsbereiche") by the German Research Foundation (DFG) and coordinates eleven national and European projects. Members of the faculty hold currently five Advanced Grants, three Consolidator Grants and eight Starting Grants by the European Research Council (ERC).

## LMU University Hospital

"Gemeinsam. Fürsorglich. Wegweisend" - is the claim of LMU University Hospital. Together with its patients and partners it strives for groundbreaking research and treatments in a caring environment.

Thanks to its achievements in research, teaching and patient care, the university hospital enjoys an excellent reputation both nationally and internationally. Its 10,713 staff members in the areas of medicine, patient care, administration, technology and maintenance are taking care of patients in 48 clinical departments, institutes and divisions. In addition, 50 interdisciplinary centers offer individual medical care. Interdisciplinary collaboration of experts from different medical areas enables efficient diagnosis and therapy. Around 500,000 patients are treated annually at both locations, the Campus City Center and the Campus Großhadern. With 2,058 beds, the university hospital provides high standards of diagnosis, treatment and nursing, and is the second largest university hospital in Germany. The university hospital receives an annual research and teaching budget of 153 million Euro from the state of Bavaria. The faculty and the university hospital secure additional third-party funding of over 144 million Euro per year.



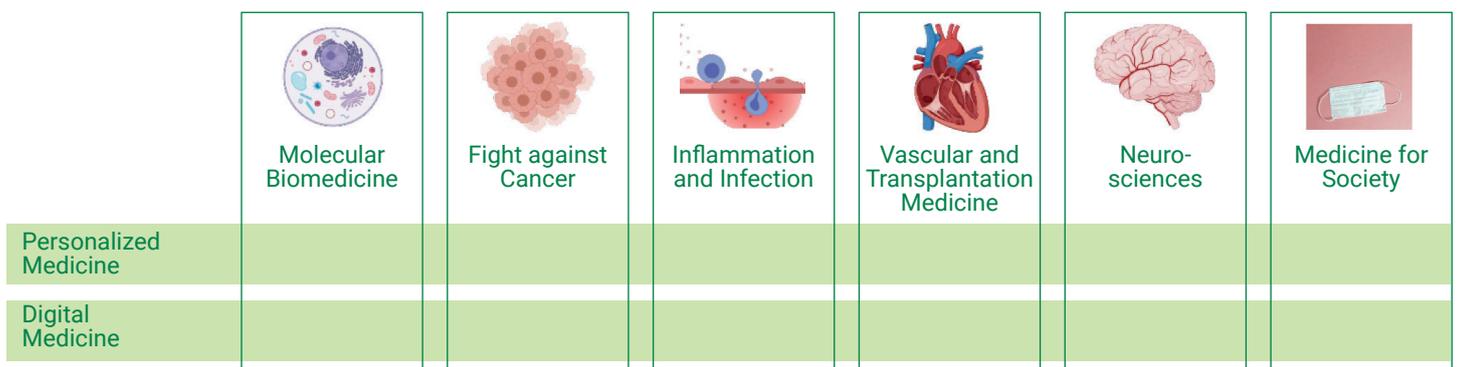
## Campus City Center

LMU University Hospital is one of the largest hospital complexes in Germany. The Campus City Center is located only one kilometer from Marienplatz, the heart of Bavaria's capital. The **Max von Pettenkofer Institute (1)** is named after Max Joseph von Pettenkofer, the scientific founder of modern city sanitation and hospital hygiene. The **Institute of Anatomy (2)** was completed in 1907. It is one of the first steel concrete constructions in Germany. Other preclinical institutes of the faculty include the **Institutes of Physiology (3)**, **Medical Psychology (4)**, **Ethics History and Theory of Medicine (5)**, **Pharmacology and Toxicology (6)**, **Legal Medicine (7)** and **Pathology (8)**. Founded in 1913 as a royal hospital for obstetrics and gynecology the **Department of Obstetrics and Gynecology in Maistraße (9)** has seen the births of many inhabitants of Munich. The **Dr. von Hauner Children's Hospital (10)** from 1846 is named after its founder, Dr. August von Hauner.

The **Departments of Psychiatry and Psychotherapy (11)** saw the works of Alois Alzheimer and Emil Kraepelin where Alzheimer's disease was first described. Other departments of the university hospital at the Campus City Center include the **Departments of Child and Adolescent Psychiatry, Psychosomatics and Psychotherapy (12)**, **Dental Medicine (13)**, **Oral and Maxillofacial Surgery and Facial Plastic Surgery (14)**, **Radiation Oncology (15)**, **Dermatology and Allergy (16)**, **Radiology and Nuclear Medicine (17)**, **Internal Medicine (18)**, **Surgery (19)**, **Otorhinolaryngology (20)** and **Ophthalmology (21)**. Opening in the first half of 2021, the modern, interdisciplinary **"Klinikum Innenstadt" (22)** with 200 patient beds will bundle expertise in the fields of internal medicine, surgery, emergency aid and obstetrics and gynecology. On a total of additional 12,400 square meters of floor space it will provide high-end medicine in the city center for generations of patients to come.

## Biomedicine for Life and Quality of Life

The research profile of the Faculty of Medicine comprises six focal areas (columns). They are connected by the two interdisciplinary areas "Personalized Medicine" and "Digital Medicine" (rows).





## Campus Großhadern

The Campus Großhadern hosts most of the high-tech medicine of the university hospital. The **Main Patient Ward Building (1)** is lovingly called “the toaster”. It hosts 1,200 beds in total. Adjacent to it, the **Surgical and Acute Care Center (2)** houses emergency rooms, operating rooms and intensive care units. The main building is connected to the **Lecture Halls (3)**, a main teaching site of the faculty. Together, these buildings form the heart of the university hospital Campus Großhadern. The Campus will be greatly expanded in the coming 20 years, including a new **Children’s Hospital (4)**. The university hospital is surrounded by a cluster of excellent biomedical, preclinical and clinical research centers including the **Center of Stroke and Dementia Research (5)**. With the planned construction of the new research building “**Interfaculty center for endocrine and cardiovascular disease network modeling and clinical transfer (ICON) (6)**” research in the field of endocrine and cardi-

ovascular diseases will be bundled and the translation from basic biomedical research to clinical application will be strengthened. A new joint building (7) will host both **Microbiological and Virology Diagnostics and Cardiovascular Research** which currently shares a building with **Pathology (8)**. The **Gene Center (9)**, **BioSysM, the Center for Molecular Biosystems (10)**, and the **Faculty of Chemistry and Pharmacy (11)** are strong partners in research and teaching. At the western border of the Campus Großhadern, separated by sports facilities and a small forest, lies the **Biomedical Center (12)** of the Faculty of Medicine, the LMU Biocampus Martinsried housing the **Faculty of Biology (13)**, the **Startup Campus (14)** and the **Max Planck Institutes for Neurobiology (15)** and **Biochemistry (16)**. Together, these institutions and the startup companies at Campus Großhadern and Martinsried form one of the largest and most active biomedical clusters in Europe.

### Special Focus: COVID-19 Research

#### At the forefront of COVID-19 research

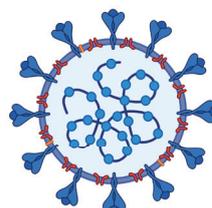
Researchers of the faculty were quick to address the challenges posed by the largest pandemic in recent history. By March 2020, thirty original research programs had been started and that number has been growing ever since. By August 2020, 74 original papers have been published. The university hospital facilitates these efforts with its register for more than 1,000 patients and biosamples (CORKUM).

#### National network of university medicine (NUM) against COVID-19

The university hospital is a partner site of the national network of university medicine. It is involved in 11 of the 13 consortia and speaker of the PallPan consortium for palliative COVID care.

#### Early contribution to global effort in fighting COVID-19

In January 2020, a team of the Division of Infectious Diseases and Tropical Medicine was the first to observe the spreading of SARS-CoV-2 by asymptomatic carriers (Rothe et al., NEJM, 2020). Their discovery has informed international policy and has saved numerous lives. For her role in the pandemic Dr. Camilla



Rothe was selected by Time Magazine as one of the 100 most influential persons of 2020. As an outstanding example, she represents many colleagues involved in the battle against COVID-19.

## Facts and Figures

### Departments and staff



14 basic science and preclinical institutes  
48 university hospital departments



12,294 staff members, thereof:  
1,581 basic science & preclinical  
10,713 university hospital

### Research



153 Mio. Euro research and teaching (university hospital)  
34 Mio. Euro third-party (basic science & preclinical)  
110 Mio. Euro third-party (university hospital)



3,194 publications, 18,911 JIF (total)  
415 publications, 2,683 JIF (basic science & preclinical)  
2,779 publications, 16,228 JIF (university hospital)

### Patient care



2,058 in-patient beds  
92,722 in-patients  
421,781 out-patients

### Teaching



198 professors, thereof:  
64 basic science & preclinical  
134 university hospital

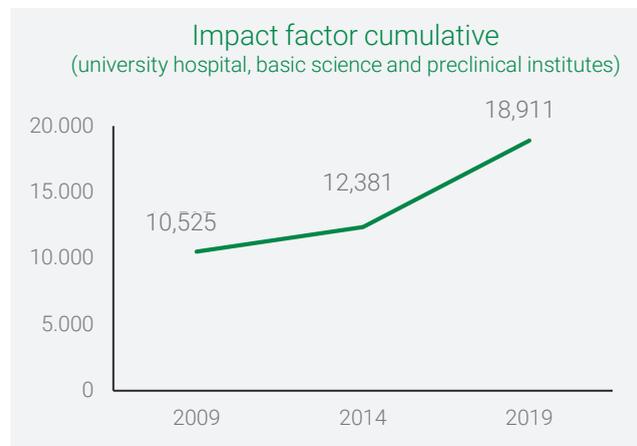
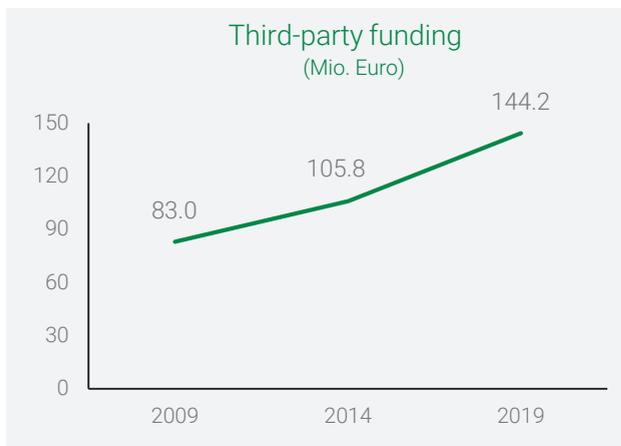


45 habilitations  
565 doctoral degrees



6,592 students, summer term 2019  
7,031 students, winter term 2019/20

## Academic Excellence



### Research consortia



- 1 Cluster of Excellence
- 6 Collaborative Research Centers (nationally funded, Speaker)
- 6 German Centers for Health Research
- 5 Advanced Grants, 3 Consolidator Grants, 8 Starting Grants by the European Research Council (ERC)
- 11 coordinated EU- and BMBF network projects
- 9 coordinated doctoral and clinician scientist programs
- 9 G-BA Innovation Fund projects

### Gottfried Wilhelm Leibniz Prizes



- Prof. Dr. Christian Haass (2002)
- Prof. Dr. Peter B. Becker (2005)
- Prof. Dr. Magdalena Götz (2007)
- Prof. Dr. Christoph Klein (2010)
- Prof. Dr. Erika von Mutius (2013)

### High impact publications of the past five years

Journal	Impact factor 2019	Number of publications 2015-2019
New England Journal of Medicine	70.7	64
The Lancet	59.1	51
Journal of the American Medical Association	51.3	11
Nature	43.1	33
Cell	36.2	29
The Lancet Oncology	35.4	31
Nature Medicine	30.6	16
The Lancet Neurology	28.8	23
Journal of Clinical Oncology	28.3	45
Nature Genetics	25.5	53
The Lancet Diabetes & Endocrinology	24.5	10
Cancer Cell	23.9	19
European Heart Journal	23.2	66
Circulation	23.1	25
The Lancet Respiratory Medicine	23.0	11
JAMA Oncology	22.4	12
Immunity	21.5	17
Nature Neurosciences	21.1	18

Selected journals with impact factor >20 and ≥ 10 publications

## German Strategy for Excellence ("Exzellenzstrategie")

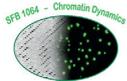


Synergy – Munich cluster for systems neurology (since 2012 – Prof. Dr. C. Haass)

## DFG (Collaborative Research Centers and Graduate Colleges)



SFB 1123 – Atherosclerosis – mechanisms and networks of novel therapeutic targets (since 2014 – Prof. Dr. C. Weber)



SFB 1064 – Chromatin dynamics (since 2013 – Prof. Dr. P. Becker)



SFB 1054 – Control and plasticity of cell-fate decisions in the immune system (since 2013 – Prof. Dr. T. Brocker)



SFB 914 – Trafficking of immune cells in inflammation, development and disease (since 2011 – Prof. Dr. B. Walzog)



TRR 152 – Maintenance of body homeostasis by TRP channel modules (since 2014 – Prof. Dr. T. Gudermann)



TRR 127 – Biology of xenogeneic cell and organ transplantation – from bench to bedside (since 2012 – Prof. Dr. B. Reichart, Prof. Dr. E. Wolf)



GRK 2621 – Predictors and outcomes in primary depression care (since 2021 – Prof. Dr. J. Gensichen)



GRK 2338 – Targets in toxicology - deciphering therapeutic targets in lung toxicology (since 2018 – Prof. Dr. T. Gudermann)



GRK 2274 – Advanced medical physics for image-guided cancer therapy (since 2017 – Prof. Dr. K. Parodi)

## German Centers for Health Research ("Deutsche Gesundheitszentren")



DKTK – German Cancer Consortium (LMU Speaker: Prof. Dr. M. von Bergwelt)



DZD – German Center for Diabetes Research (LMU Speaker: Prof. Dr. E. Wolf)



DZHK – German Center for Cardiovascular Research (LMU Speaker: Prof. Dr. C. Weber)



DZIF – German Center for Infection Research (LMU Speaker: Prof. Dr. M. Hoelscher)



DZL – German Center for Lung Research (LMU Speaker: Prof. Dr. E. von Mutius)



DZNE – German Center for Neurodegenerative Diseases (LMU Speaker: Prof. Dr. C. Haass)

## G-BA Innovation Fund



FLS-CARE (2020 to 2024 – Prof. Dr. W. Böcker, Prof. Dr. C. Kammerlander)

INFO-LE (2020 to 2023 – Dr. I. Kirchberger)

INTEGRATION-Program (2020 to 2023 – Prof. Dr. S. Theurich)

PoiSe (2020 to 2023 – Dr. Philipp M. Filippoulos)

TELE-KASPER (2020 to 2023 – Prof. Dr. J. Hübner)

COMPANION (2019 to 2022 – Prof. Dr. C. Bausewein)

RiDe-PPI (2019 to 2022 – Dr. S. Baumeister)

moma (2018 to 2021 – Prof. Dr. R. von Kries)

Palli-MONITOR (2018 to 2021 – Prof. Dr. C. Bausewein)

## Bavarian Centers for Health Research



BZKF – Bavarian center for cancer research (LMU Representatives on the Executive Board of BZKF: Prof. Dr. C. Belka, Prof. Dr. J. Mayerle)

## European Union and BMBF



PallPan – National strategy for palliative care in pandemic times (2020 to 2021 – Prof. Dr. C. Bausewein)



CLINSPECT-M – Clinical mass spectrometry center Munich (2020 to 2023 – Prof. Dr. D. Teupser)



MOBISTAR – Mobilization of people in need of intensive care (2020 to 2023 – Dr. U. Fischer)

## RESPONSE

RESPONSE – Adaptation and clinical use of existing robotic systems (2020 to 2023 – Dr. U. Fischer)



mitoNET – German network for mitochondrial diseases (2019 to 2022 – Prof. Dr. T. Klopstock)



TRACE – Transfer of multi-virus-specific T-cells following transplantation (2018 to 2022 – Prof. Dr. T. Feuchtinger)



DIFUTURE – Data integration for future medicine (2018 to 2021 – Prof. Dr. U. Mansmann)



MobilE-Net – Enabling participation by enabling mobility in older adults (2017 to 2023 – Prof. Dr. E. Grill)



CHAMP – Childhood allergy and tolerance (2017 to 2021 – Prof. Dr. B. Schaub)



SVDs-at-target – Small vessel diseases in a mechanistic perspective (2016 to 2021 – Prof. Dr. M. Dichgans)



GCBS – German center for brain stimulation (2015 to 2021 – Prof. Dr. F. Padberg)

## European Research Council (ERC)

 **Advanced Grant** NeuroCentro – Novel mechanisms of neurogenesis (2020 to 2025 – Prof. Dr. M. Götz)

 **Advanced Grant** Immunothrombosis – Cross-talk between platelets and immunity (2019 to 2024 – Prof. Dr. S. Massberg)

 **Advanced Grant** Tolerance Footprint – Clonal deletion versus clonal diversion (2017 to 2022 – Prof. Dr. L. Klein)

 **Advanced Grant** PAPA – Pathophysiology of primary aldosteronism (2017 to 2022 – Prof. Dr. M. Reincke)

 **Advanced Grant** PROVASC – Cell-specific vascular protection by CXCL12/CXCR4 (2016 to 2021 – Prof. Dr. C. Weber)

 **Consolidator Grant** Calvaria – Translational aspects of the discovery of skull marrow-meninges connections (2020 to 2025 – Dr. A. Ertürk)

 **Consolidator Grant** EvoGutHealth – Evolution of gut-associated microbial communities (2020 to 2025 – Prof. Dr. B. Stecher)

 **Consolidator Grant** LeukaemiaTargeted – Selecting genetic lesions with essential function for patients' leukaemia in vivo (2016 to 2021 – Prof. Dr. I. Jeremias)

 **Starting Grant** oxDOPAMIN – Unraveling the mystery of preferential degeneration of midbrain neurons (2021 to 2026 – Prof. L. Burbulla)

 **Starting Grant** T-MEMORE – Thrombotic memory-linking a break in tolerance to platelets to re-thrombosis (2020 to 2025 – Dr. K. Stark)

 **Starting Grant** Proteofit – Adapting protein fate for muscle function and fitness (2019 to 2024 – Prof. Dr. A. Bartelt)

 **Starting Grant** Neuroprecise – Precision medicine in traumatic brain injury (2019 to 2024 – Prof. Dr. I. Koerte)

 **Starting Grant** RecoverInFlame – T-cell-driven inflammatory mechanisms promote recovery after acute brain injury (2018 to 2023 – Prof. Dr. A. Liesz)

 **Starting Grant** ARMOR-T – Armoring multifunctional T-cells for cancer therapy (2018 to 2023 – Prof. Dr. S. Kobold)

 **Starting Grant** AstroNeuroCrosstalk – Astrocyte-neuronal cross-talk in obesity and diabetes (2018 to 2022 – Prof. Dr. C. García Cáceres)

 **Starting Grant** Baby DCs – Age-dependent regulation of dendritic cell development (2017 to 2022 – Prof. Dr. B. Schraml)

## Doctoral Programs, Clinician Scientist Programs

 Else Kröner-Fresenius "Promotionskolleg" – FöFoLe Inflammation (2021 to 2024 – Prof. Dr. H. Anders)

 Marie Curie ITN – T-OP – Training network for optimizing adoptive T-cell therapy of cancer (2020 to 2024 – Prof. Dr. S. Kobold)

 Marie Curie ITN – Cell2Cell heterogeneity (2019 to 2023 – Dr. S. Braun, Prof. Dr. T. N. Siegel)

 PRIME – Clinician scientist program in vascular medicine (2018 to 2021 – Prof. Dr. S. Massberg)

 Else Kröner-Fresenius Clinician Scientist Program – Cancer immunotherapy (2017 to 2023 – Prof. Dr. M. Subklewe)

 Else Kröner-Fresenius Clinician Scientist Program – Translational psychiatry (2017 to 2023 – Prof. Dr. P. Falkai)

 Elite Network of Bavaria – i-Target – Immunotargeting of cancer (2014 to 2022 – Prof. Dr. S. Endres)

From a grateful faculty, this Fact Sheet Research 2021 is dedicated to Professor Dr. Karl-Walter Jauch, Chief Medical Officer & CEO of the LMU University Hospital from 2013 to 2020.



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Prof. Dr. Stefan Endres



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References: Annual report 2019, EvaLuna 2009, 2014, 2019, DFG, EU, BMBF, Else Kröner-Fresenius Stiftung, Elitenetzwerk Bayern, G-BA

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