

Research Report of the Center of Mental Health (2019-2022)

ZEP

Zentrum für
Psychische
Gesundheit



PPP

Klinik und Poliklinik für
Psychiatrie, Psychosomatik
und Psychotherapie



KJPPP

Klinik und Poliklinik für
Kinder- und Jugendpsychiatrie,
Psychosomatik und Psychotherapie

**Uniklinikum
Würzburg**



Content

A Recommendations of ESAB 2021 and Center Developments 2021-2022

Page 2 - 10

B Member Institutions of Center of Mental Health (06/2022)

Page 11 - 13

C Research Report of Center of Mental Health (2019-2022)

Page 14 - 40

A Recommendations of ESAB 2021 and Center Developments 2021-2022

1. Recommendations by the Scientific Advisory Board

**6st Science Conference – Center of Mental Health Würzburg
June 2021**

with comments on developments in 2021-2022

Overall feedback:

The ESAB is impressed by the achievements of the CMH during the last three year period from 2018-2021 and congratulates on this great story of success in scientific as well as in clinical terms!

Overall quality of presented research is high; focus on development of mental disorders; collaborative spirit; congratulations on the new appointments (Ehrhardt-Lehmann, Deserno, Reiter); “previous generation” has been successful in third-party-funding (Gamer, Hein, Tovote)

Thank you for the positive appraisal of our efforts and achievements!

Specific feedback to the written report:

The following information is missing and should be added in future reports:

- *number of people doing research (especially junior scientists such as PhDs, Postdocs)*

This information is given in detail in section B listing the active researchers with protected research time.

- *specify use of the third-party-funding*

This information is given in detail in section D.

- *more information regarding mentorship/ education*

In summary MD and PhD students and clinician scientists are mentored by interdisciplinary mentorates consisting of 3-4 mentors in the context of the Graduate School of Life Science and the Integrated Clinician Scientist College.

- *report focuses on departments – show additional value of the center*

As opposed to the previous report there is only a joint report in section C stressing the added value.

- *report should contain future perspectives*

- *For example: "German Center of Prevention Research and Mental Health":
so far it is only a building that needs to be filled with active researchers;
specify what is meant by "prevention"; center needs a research focus that is
able to attract significant third-part-funding; needs public health service
research/ perspective; the rehabilitation focus (a strength in Würzburg) could
be integrated.*

We agree that the building needs to be filled with researchers and research.

The "DZPP" provides an infrastructure to transfer mechanistic insight into prevention programs along a structured pathway, from pilot studies to confirmatory RCTs and broad implementation studies. We have initiated several third-party funded projects, e.g. the phase III cluster-randomized trial "DUDE", that is currently carried out in north bavarian schools in 3500 pupils, aiming to enhance emotion regulation in order to reduce the incidence of non-suicidal self-injurious behavior. In cooperation with the Chair of human-computer interaction (Prof. Marc Latoschik, Prof. Carolin Wienrich), we are investigating preventive and treatment options using virtual reality (VR) for adolescents with an emotion regulation disorder and on prevention of cyber mobbing.

In summary, we want to cover the spectre from

- (a) primary intervention during development as represented by research e.g. of Sarah Kittel-Schneider, Andrea Reiter, and Arne Bürger, over
- (b) secondary prevention as represented e.g. by the new W1 professor on prevention of dementia and dementia complications or the ProVIA-project, funded by the Bavarian Social ministry, providing an app-based intervention to reduce aggression and coercive measures in adolescents with autism, to
- (c) tertiary prevention as represented by the rehabilitation research group represented by Heiner Vogel.

- *Recommendation to continue molecular focus of Lesch group*

We agree and a probable option is that either the W3 (successor Lesch) or the W2 (successor Mattheisen) are filled by a professor with this profile providing support for the molecular research of Sarah Kittel-Schneider, Angelika Erhardt-Lehmann, Angelika Schmitt-Böhrer and Christina Lillesaar in cooperation with research at the Institute of Clinical Neurobiology by Philip Tovote and Carmen Villmann.

- *Strengthen translation to clinic, but Würzburg alone is too small for this, seek collaborations with the actually developing German Centers for Child and Adolescent Health and Mental Health*

In fact, we have contacted participating institutions of both centers, but as yet both centres still need to define their internal structure before linking with other research centers such as the Würzburg one.

In the meantime, however we have founded a National Centre of Affective Disorders with university departments at Frankfurt, Erlangen, Regensburg, Bochum, Münster and Dresden. The research vision is essentially the one of a joint Frankfurt/Würzburg application for a Center of Mental Health. Already, funding for multicenter clinical studies has been acquired and studies are initiated.

- *Future strategy should be result of SWOT-Analysis*

Further develop applications for coordinated DFG funding programs, in particular in the fields of “Development and transition” and “Network-Dynamics”.

Recommendations regarding research structures:

- *CMH should have its own governance structure and budget; already recommended in previous ESAB meeting – no change here suggestion:
coordinator financed by the center if no funding by university/faculty*

We fully agree.

Progress on this is hampered by the transition period at the adult psychiatry department which started as of April 1st 2021.

- *The use of additional lab space (60 square meters molecular in 2021 and 120 square meters systems laboratory in 2022) is strongly recommended by the ESAB. However, specific recommendations regarding the use of lab space postponed to on-site meeting 2022*

We thank you and will be glad to give you an on-site tour showing the progress in construction of the molecular laboratory.

Recommendation regarding quality control:

- *evaluations of mentorship and services by mentees/ patients*

In summary, there is a sophisticated mentorship system at the medical faculty and the university covering the full career track from study to tenure for MDs as well as PhDs.

In October 2020, a patient advisory board has been established at the CMH.

Recommendations regarding profiles and timeline of professorships:

- *Senior professorships should be filled to avoid uncertainty (“limbo”) as soon as possible. Question is important for the future of the center, which is currently mainly kept together by Jürgen Deckert.*

This point has been well taken by the faculty and the aim is to have a nominee in spring 2023, i.e. one year ahead of the actual transition.

Until the end of 2023 Jürgen Deckert will be a member in central organs of the faculty such as a vicedean of the faculty, the strategy committee of the university hospital and a member of steering committees of e.g. the German Heart Failure Center, the Center of Rare Diseases, the Interdisciplinary Pain Center and the Strategy Committee of the curriculum reform.

- *Fill Molecular Psychiatry professorship of Klaus-Peter Lesch with the same research profile to maintain this strong research focus with a strong national and international research status in translational and molecular psychiatry.*

This point has been well taken by the faculty, however it may be that the Lesch profile may be covered by a W2 professor while the W3 professor may be developed into an artificial intelligence profile. The faculty will decide upon this topic after the succession of Jürgen Deckert has been established.

- *Medical Psychology does currently not exist on a professorship level, but there will be an increase in teaching load in the future due to new regulations (e.g., National Competence Learning Goals Curriculum, future license regulations, ÄAppO) broad agreement that this position needs to be reestablished on W2 or W3 level; could be a targeted search; should be a person that fits well into the center*

This point has not been fully appreciated as yet by the faculty. There may be an option for a donation chair on rehabilitation research in mental health to be filled by a medical psychologist.

Decision on this will finally be made by the medical faculty, support in form of an explicit statement is highly appreciated.

Recommendation regarding W2 professor Psychosomatic Medicine in Internal Medicine:

- *This W2 professorship should focus primarily on psychooncology*

This is already so with Imad Maatouk being fully integrated in the new National Tumor Centre satellite at Würzburg in association with the Deutsche Krebsforschungszentrum at Heidelberg.

- *Perspective: integration into CMH*

This is agreed on and in preparation, it is practiced informally and can be realized formally once the successor of Jürgen Deckert has been nominated.

Recommendation regarding Mother- and Child Service Unit (in Gynecology):

- *Clinically and scientifically important unit, however, insufficiently financed in German health system*

We fully agree.

- *Prioritize negotiations with health insurance companies to achieve a better contract*

Since 2022 there is a new billing code which the department has been certified for as first university department in Bavaria with a considerably better reimbursement.

Other strategies to overcome this are grant funding for pilot services and innovation fund applications to prepare for regular services covered by the insurance companies.

Additional points

- *Psychotherapy research strong in adults; transfer knowledge to children and adolescents to be established in context of new psychotherapy curriculum, teaching role for Andrea Reiter*

We fully agree with regard to the Institute of Clinical Psychology and there are plans to participate in the new master Psychotherapy which will start at Würzburg with the winter semester 2022/2023.

We disagree with regard to child and adolescent psychiatry which has taken part in numerous psychotherapy research initiatives including three of the BMBF funded psychotherapy networks.

- *How to attract the best students to a career in psychiatry? Provide more details; mentorship on midcareer level (already suggested in previous ESAB meeting).*

As pointed out above part of the Würzburg culture are faculty and even university-wide career mentorship structures such as the Graduate School of Life Sciences and the Interdisciplinary Clinician Scientist College as opposed to center specific structures. One rationale of course is the use of synergies, the other is the fostering of interdisciplinary research which is a core element of Würzburg scientific culture. At present there are mentorships with 2-4 faculty members for all MD students doing a structured MD, for all PhD students, for all clinician scientists and for all tenure-track professors (Kittel-Schneider, Erhardt-Lehmann, Deserno and Reiter).

2. Center Developments 2021-2022

- Structural developments

1. Child&Adolescent Outpatient Service building has been renovated.
2. Adult Psychiatry and Psychosomatic DayCare units with mother&child service have been concentrated in one building on hospital campus in vicinity of mother&child liaison and outpatient service in the gynecology department allowing for synergies.
3. Construction of German Center of Prevention Research in Mental Health has started on Hubland campus in vicinity of Fraunhofer imaging facility and Virtual Reality facilities of Psychology, Informatics, and CAIDAS allowing for synergies. The construction will be finished April 2023. Temporary housing is provided by the University.
4. Renovation of Medical Psychology unit in downtown Würzburg in vicinity of Clinical Psychology institute with prevention outpatient service is continuing and is expected to be finished by 10/2022.
5. The first baby –guidance project in Bavaria with dedicated social workers has been established in cooperaton between adult psychiatry and gynecology as of 04/2022.
6. In preparation of a multi-center trial a new specialized transgenerational psychiatry outpatient service for early diagnosis of psychosis has been established as of 04/2022.
7. As a consequence of the 2nd Würzburg amoc run on June 25th a trauma outpatient service has been established at the Medical Psychology unit.
8. Molecular psychiatry laboratory renovation utilizing archive rooms rendered unnecessary due to the ongoing and systematic digitalization effort at the psychiatries has started as of 10/2021.
9. Child and Adolescent Psychiatry and Neuroradiology have established infrastructure for functional 3Tesla MRI located at the Department of Neuroradiology to run studies at both the PRISMA and the available SKYRA scanner in addition to those existing between Adult Psychiatry and Psychology one one side and Fraunhofer Institute (3Tesla) and Comprehensive Heart Failure Center (7Tesla) on the other side.
10. Center of Geriatric Medicine in cooperation between Internal Medicine, Neurology and Adult Psychiatry has been approved by University Hospital Board and will be established by 10/2022.

- Human resources developments

1. Prof. Imad Maatouk has taken up the W2 professor position of Psychosomatic Medicine as of 11/2021.
2. W2 Professor position for psychotherapy and interventional psychology is currently filled at the Institute of Psychology.
3. W1 Professor position for prevention of dementia and dementia complications is currently filled at the Department of Adult Psychiatry.

- Program developments

1. Elite Master program Translational Neuroscience has been successfully extended until 2028
2. Research training Group RTG 2660 „Approach & Avoidance“ (speaker Prof. Matthias Gamer) has officially started with filling the first PhD student positions as of 10/2021.
3. Clinician Scientist program UNION-CVD has been successfully extended until 2024.
4. Master program Psychotherapy of the Institute of Psychology has been accredited and will start as of 10/2022.
5. Official kick-off of the curricular reform of Human Medicine at Würzburg University was in 04/2022, start is expected for 2026.
6. Educational program for Ukrainian medical students of the partner university Lviw is currently in preparation for summer 2022.
7. National Center for Affective Disorders as a consortium of German university psychiatries (Bochum, Dresden, Erlangen, Frankfurt, Münster, Regensburg, Würzburg) focusing on research in affective disorders (depression and anxiety disorders) has been established in 10/2021 extending the MainMental Health Center established in 10/2020.

B Member institutions of Center of Mental Health with tenured/tenure-track full-time researchers

- Department of Psychiatry, Psychosomatics and Psychotherapy

Full professors:

Prof. Jürgen Deckert	Chair of Psychiatry
Prof. Klaus-Peter Lesch	Chair of Molecular Psychiatry
Prof. Grit Hein	Social Neuroscience
Prof. Sarah Kittel-Schneider	Developmental Psychiatry
Prof. Angelika Erhardt-Lehmann	Anxiety Research (affiliation with Max-Planck-Institute of Psychiatry)
NN	Psychiatric Genomics & Epigenomics (Prof. Manuel Mattheisen – 04/2021)

Senior professors (emeriti):

Prof. Peter Riederer	Clinical Neurochemistry
Prof. Helmut Heinsen	Neuroanatomy (affiliation with institute of forensic medicine)

Affiliated professors (0.25 positions):

Prof. Daniel van den Hove (Maastricht)	Translational Neuroscience
Prof. Daniel Müller (Toronto)	Pharmacogenetics

Work Group Leaders:

Prof. Martin Herrmann	Psychophysiology and Neuroimaging
PD Angelika Schmitt-Böhrer	Functional Neuroanatomy
PD Heike Weber	Functional Genomics

PostDocs:

Dr. Meike Scherf-Clavel	Psychiatry
Dr. Olga Rivero	Molecular Psychiatry
Dr. Rhiannon McNeill	Developmental Psychiatry
Dr. Martin Weiß	Social Neuroscience
Dr. Youqing Zhou	Social Neuroscience
Dr. Jerome Signoret-Genest	Systems Neurobiology

Clinician Scientists with protected time (CSC and IZKF):

Dr. Georg Ziegler	iPSC of ADHD (UNION-CVD 2019-2021)
Dr. Daniel Bellinger	Performance anxiety (UNION-CVD 2021-2023)
Dr. Matthias Nieberler	iPSC of Bipolar Disorder (IZKF 2021-2022)

PhD students (RTG Approach & Avoidance 10/2021 -):

Ana Magdalena Pinea	Lesch
Nikita Gorbunow	Lesch
Jasper Bischofberger	Hein
Elif Salur	Schmitt-Böhrer & Asan

Ph students (DFG etc.):

Hsing Ping-Ku	Lesch
Maria Vitale	Lesch
Johanna Zöllner	Lesch
Marthe Gründahl	Hein
Anne Saulin	Hein
Anna Reinhard	Hein
Lisa Cybinski	Herrmann
Chantal Hampf	Weber & Deckert
Katharina Hutterer	Erhardt-Lehmann & Pittig

- ***Department of Child & Adolescent Psychiatry, Psychosomatics and Psychotherapy***

Full professors:

Prof. Marcel Romanos	Child and Adolescent Psychiatry
Prof. Lorenz Deserno	Neuroscience in Dev. Psychiatry
Prof. Andrea Reiter	Learning in Dev. Psychiatry

Senior professor (emeritus):

Prof. Manfred Gerlach	Clinical Neurochemistry
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Work Group Leader:

PD Thomas Jans	Translational Intervention&Prevention
PD Christina Lillesaar	Neurodev. Disease Mechanisms

PostDoc:

Dr. Carsten Drepper	Neurobiology
Dr. Karin Egberts	Pharmacovigilance
Dr. Vanessa Scholz	Neuroscience in Dev. Psychiatry
Dr. Helmar Zeach	Neuroscience in Dev. Psychiatry
Dr. Theresa Kim	Learning in Dev. Psychiatry

Clinician scientist (CSC and IZKF):

Dr. Franziska Radtke	iPSC 22q11.2 (UNION-CVD 2020-2022)
Dr. Hans Aster	ADHD MPH, Neuroscience (IZKF 2020-2023)

PhD students (RTG Approach & Avoidance 10/2021 -):

Klara Gregorova	Romanos & Reiter
David Reindel	Romanos & Reiter
Maria Waltmann	Deserno

PhD students (DZPP):

Sabrina Mittermeier	Romanos & Bürger
Christin Scheiner	Romanos & Bürger
Alexandra Seidel	Romanos & Bürger
Sophia Weyrich	Jans & Romanos

- **Section of Medical Psychology (Dept. Psychiatry, Psychosomatics and Psychotherapy)**

Work Group Leader:

Prof. Heiner Vogel

Rehabilitation Medicine

Postdocs:

PD Karin Meng

Rehabilitation Medicine (affiliation with Comprehensive Cancer Center)

Dr. Matthias Lukaszczik

Rehabilitation Medicine

Dr. Jutta Ahnert

Rehabilitation Medicine

- **Associated individual members**

Institute of Clinical Psychology (CMH, CAC, Prevention Research):

Professors Paul Pauli (University President since 04/2021)

Prof. Matthias Gamer

Prof. Andrea Kübler

Prof. Johannes Hewig

Prof. Andre Pittig (W2 Erlangen since 06/2021)

Institute of Clinical Neurobiology (CAC, Translational Neuroscience):

Prof. Philip Tovote

Prof. Carmen Villmann

PD Robert Blum

Prof. Jens Volkmann (Neurology)

Neurogerontopsychiatry

Prof. Hermann Einsele (Internal Medicine II)

Psychosomatic Medicine

C Research Report of Center of Mental Health (2019-2022)

As opposed to previous reports this report will not be a list of reports of the individual member institutions, but a joint report summarizing essential developments and addressing the points of the board review.

In detail, the following aspects will be addressed:

- **Research Vision with focus on anxiety**
- **Translational perspective**
- **Mentoring and Career development**

Doing so, contributions of individual members will be presented allowing for synergistic cooperations, e.g. in future DFG - funded Research Groups and Collaborative Research Centers or BMBF- and EU- funded Consortia as soon as the transition period has been successfully concluded.

The focus will be on research on fear, anxiety and anxiety disorders.

1. Research Vision

Essentially, the CMH follows the NIMH Research Strategy:

National Institute of Mental Health Strategic Plan for Research

The NIMH Strategic Plan will guide our research forward across the country and around the world.

In this Strategic Plan for Research, NIMH outlines four high-level Goals:

- ▶ **Goal 1: Define the Brain Mechanisms Underlying Complex Behaviors**
- ▶ **Goal 2: Examine Mental Illness Trajectories Across the Lifespan**
- ▶ **Goal 3: Strive for Prevention and Cures**
- ▶ **Goal 4: Strengthen the Public Health Impact**

These four Goals form a broad roadmap for the Institute's research priorities beginning with fundamental science and extending through evidence-based services that improve public health outcomes.

- ▶ *National Institute of Mental Health Strategic Plan for Research*

Examples will be presented from current research on anxiety:

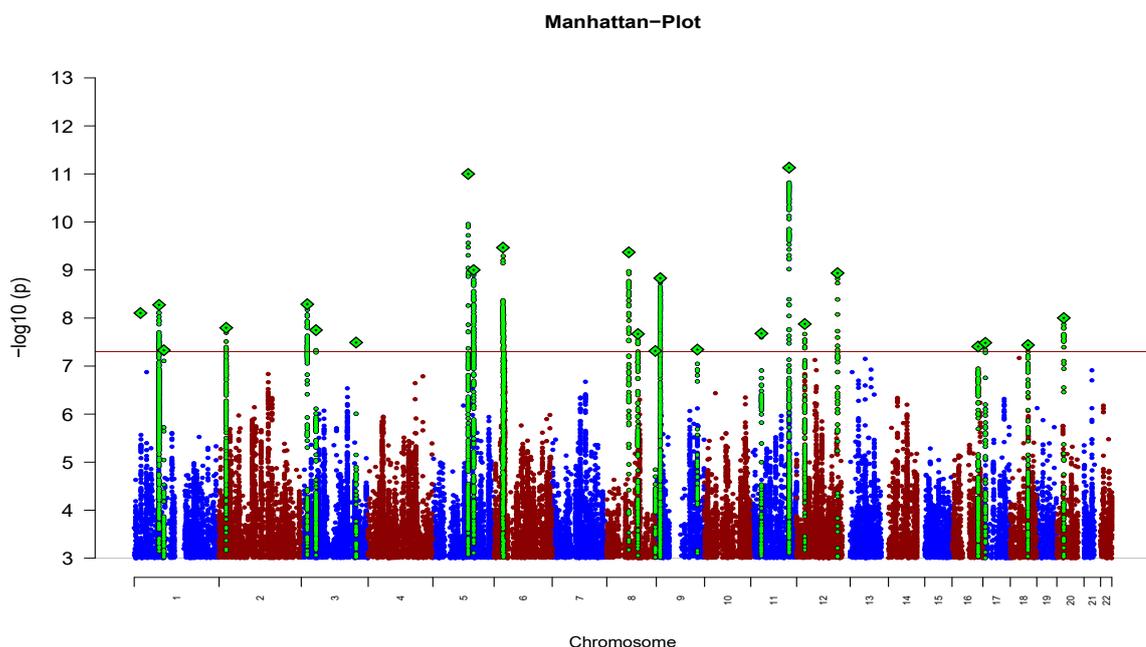
CMH Strategies addressing goal 1:

Brain Mechanisms Underlying Complex Behaviors

Genetics and Epigenetics:	Identify Molecular Pathways
Imaging:	Identify Neuronal Networks
Experimental Models:	iPSC and animal models for pathway and network analyses
Probands and Patients:	Deep phenotyping for functionally defined endophenotypes as basis for functionally defined interventions

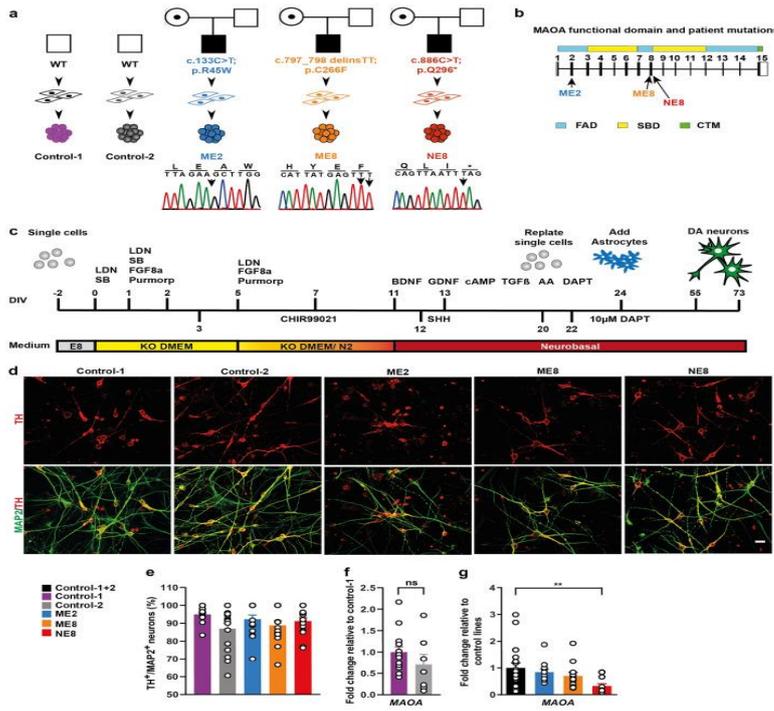
- Genetics and Epigenetics (PGC Anxiety and PTSD)

40 genome-wide significant loci in 100 000 anxiety patients
Overlap with loci for depression and learning



PGC GWAS 10/2021
Mattheisen, Purves, Silviu-Bacanu ... Deckert, Eley, Hetteema

Polygenic Risk Score adds to the risk for PTSD in addition to trauma and negative coping styles in the DAAD SEE-PTSD cohort.

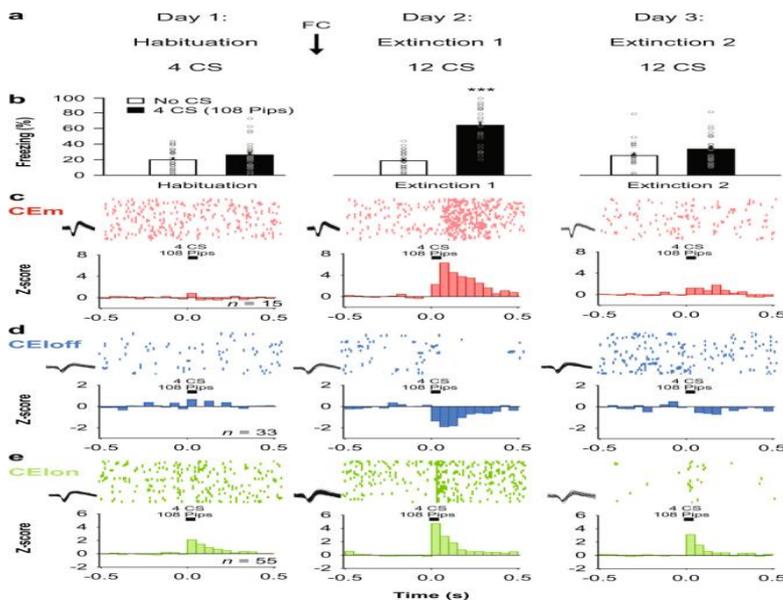


Van Rhijn ... Kittel-Schneider ...

Brunner syndrome associated MAOA mutations result in NMDAR hyperfunction and increased network activity in human dopaminergic neurons. *Neurobiology of Disease* 163, 2022

- *Mouse model*

Optogenetics identify neuronal subpopulations essential for amygdala micro circuits modulating fear extinction

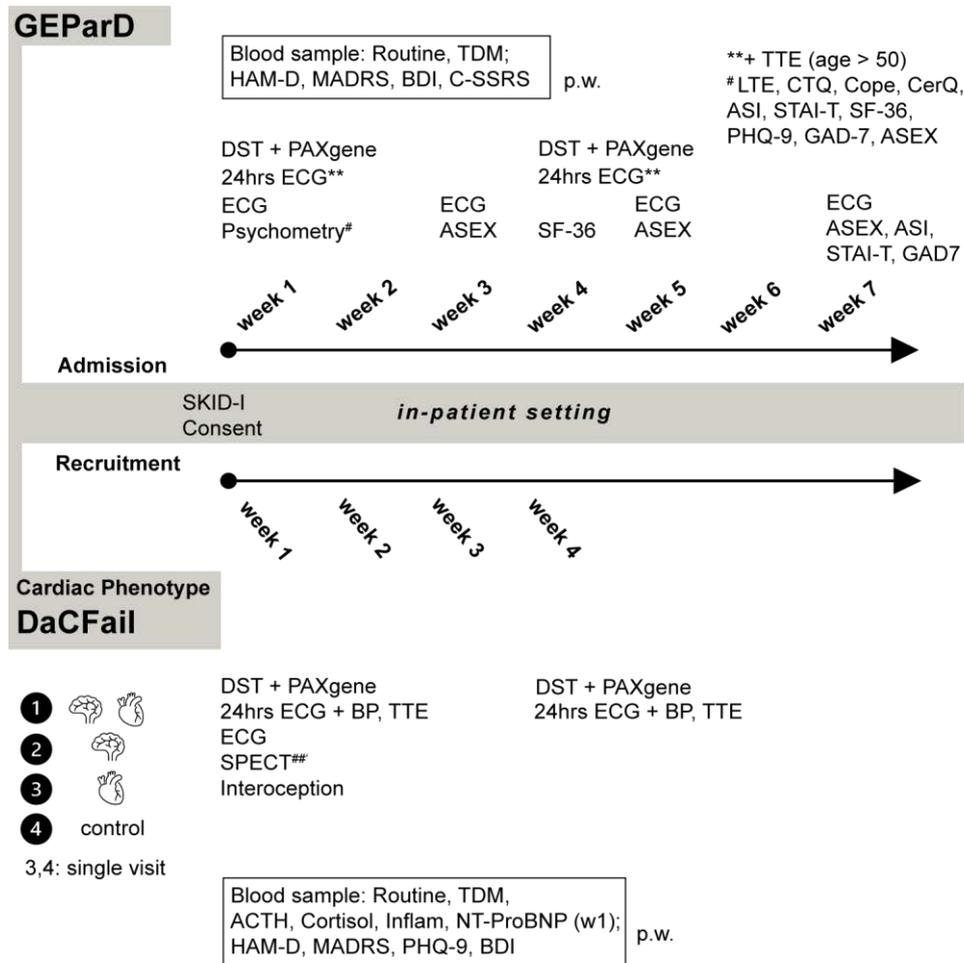


Whittle ... Tovote ...

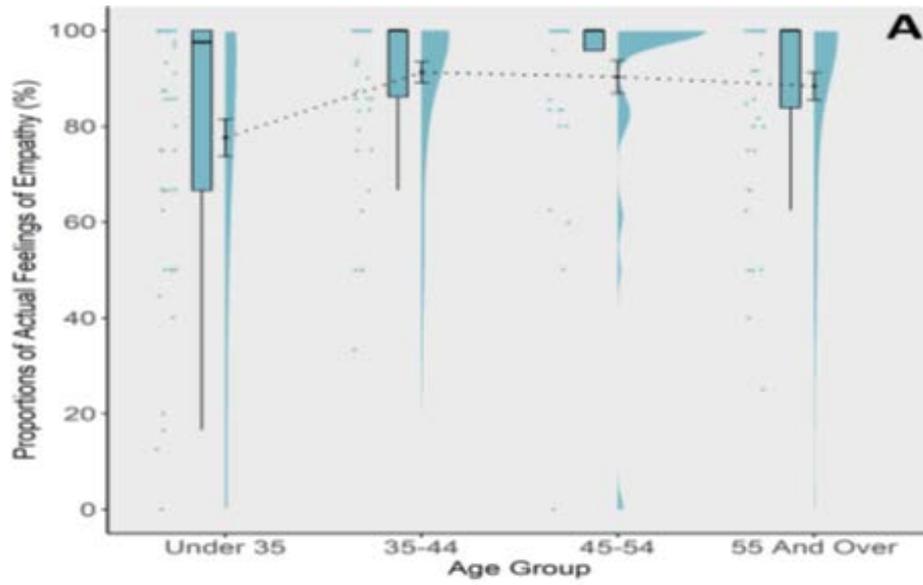
Central amygdala micro circuits mediate fear extinction. *Nat Commun* 12:4156, 2021

- *Probands and Patients: Depression, anxiety, stress axis and cardiac function*

Multidimensional deep phenotyping in naturalistic therapy depression cohort (GEPaRD and DaCFail) in cooperation with Comprehensive Heart Failure Center allows to define depression subtypes with regard to stress axis and cardiac function.



Lichter et al. Deep phenotyping as basis for a personalized depression therapy: The GEPaRD and DaCFail study, in preparation



Pollerhoff L, Stietz J, Depow GJ, Inzlicht M, Kanske P, Li SC, **Reiter AMF**. Investigating adult age differences in real-life empathy, prosociality, and well-being using experience sampling. *Scientific reports*, 12(1), 1-15, 2022.

CMH strategies addressing goal 3:

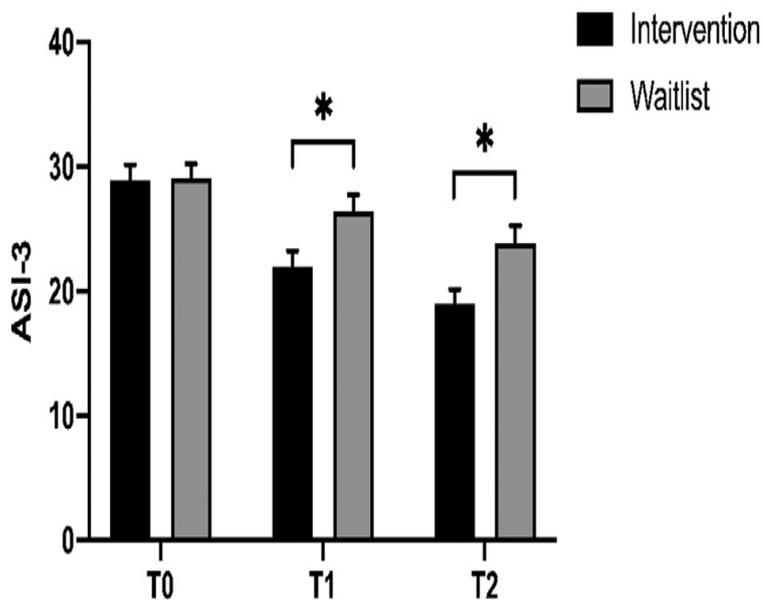
Prevention and Cures

Interventions for endophenotypes

Interventions applying virtual reality

- *Prevention using Intermediate Phenotypes: Anxiety Sensitivity*

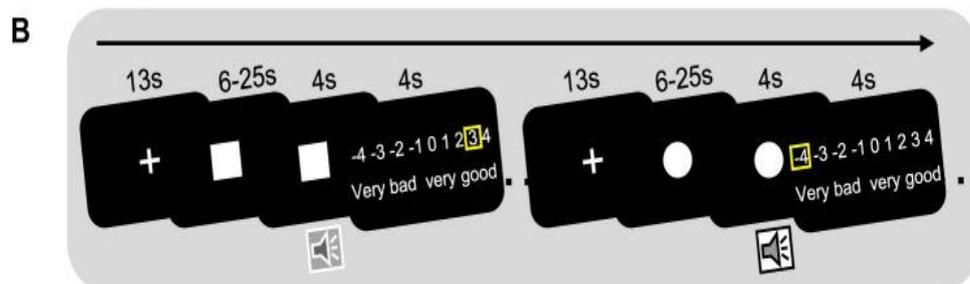
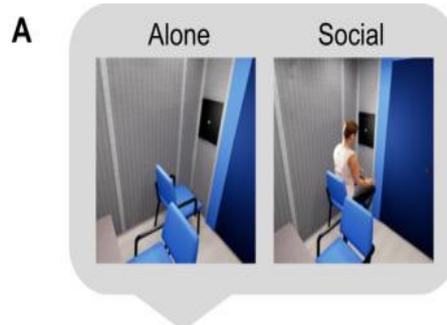
Specific intervention successfully reduces anxiety risk endophenotype anxiety sensitivity.



Schiele, Vietz, Gajewska, Unterecker, Gottschalk, Deckert, Neufang, Schmidt, Domschke.
The cognitive anxiety sensitivity treatment (CAST) in anxiety prevention - Focus on separation anxiety and interoception.
Eur Neuropsychopharmacol 53: 104-113, 2021

- *Therapy using Virtual Reality: Avatars*

Virtual agents reduce fear in women with high social anxiety in study in cooperation with CAIDAS



Qi, Buch, Krop, Hermann, Latoschik, Deckert, Hein.
 Social buffering of human fear is shaped by gender, social concern and the presence of real versus virtual agents.
 Transl Psychiatry 11:641, 2021

CMH Strategies addressing goal 4:

Public Health Impact

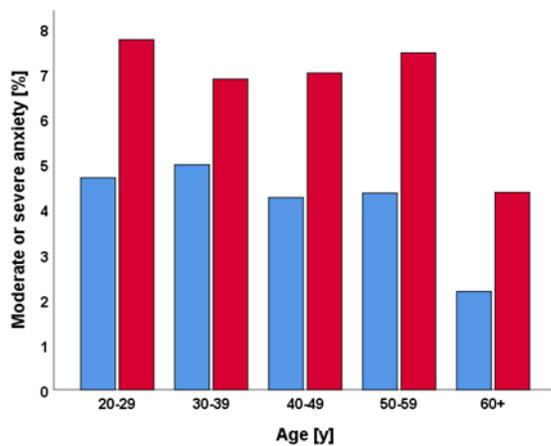
Population studies

Multicenter Trials

Apps

- Population studies: NAKO and STAAB

Broad phenotyping in the national cohort with 200 000 individuals will allow to analyze the relevance of anxiety disorders for somatic health.

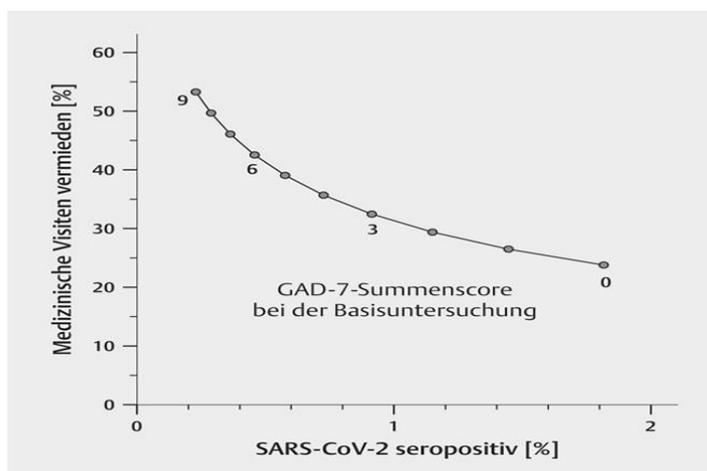


Erhardt, Gelbrich ... Deckert

Generalised anxiety and panic symptoms in the German National Cohort (NAKO)

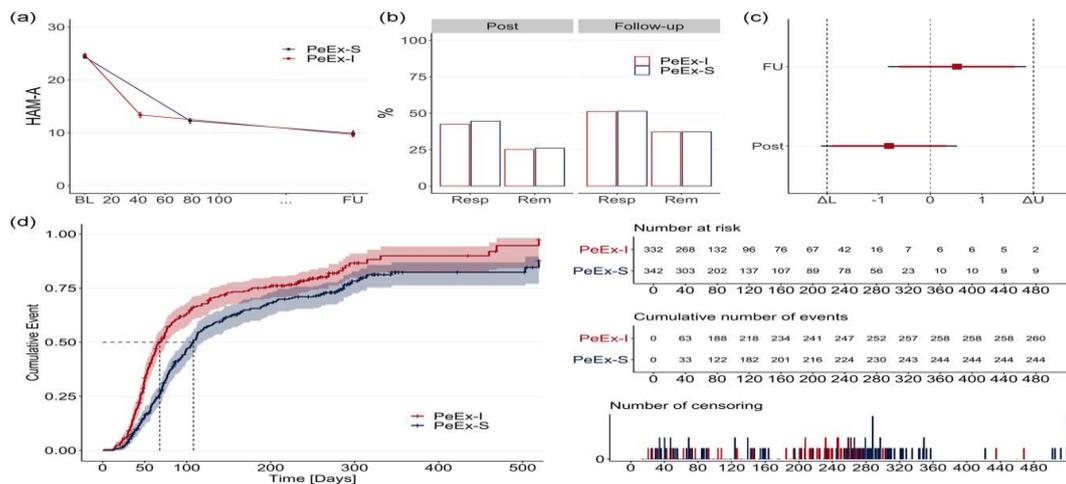
World J Biol Psychiatry, 2022 Feb 17:1-16. doi: 10.1080/15622975.2021.2011409. Online ahead of print.

STAAB study with 5000 Würzburg individuals indicates that anxiety reduces risk for COVID-19 infection at the price of missing scheduled doctor visits.



- *National and EU multicenter trials: Protect and Predict*

Protect study shows that temporally intensified exposure therapy of anxiety disorders is associated with faster remission. This is a guide-line relevant finding.



Pittig ... Deckert, Pauli ...

Efficacy of temporally intensified exposure for anxiety disorders: A multicenter randomized clinical trial
Depress Anxiety 38:1169-1181, 2021

Application of a combined psychometric and neuropsychological algorithm based on machine learning for antidepressant therapy is associated with reduction in anxiety, but not depression in depressed patients. While with regard to the primary outcome this is a failed study, it opens up new perspectives for anxiety research.

Analyses of measures other than symptoms of depression.

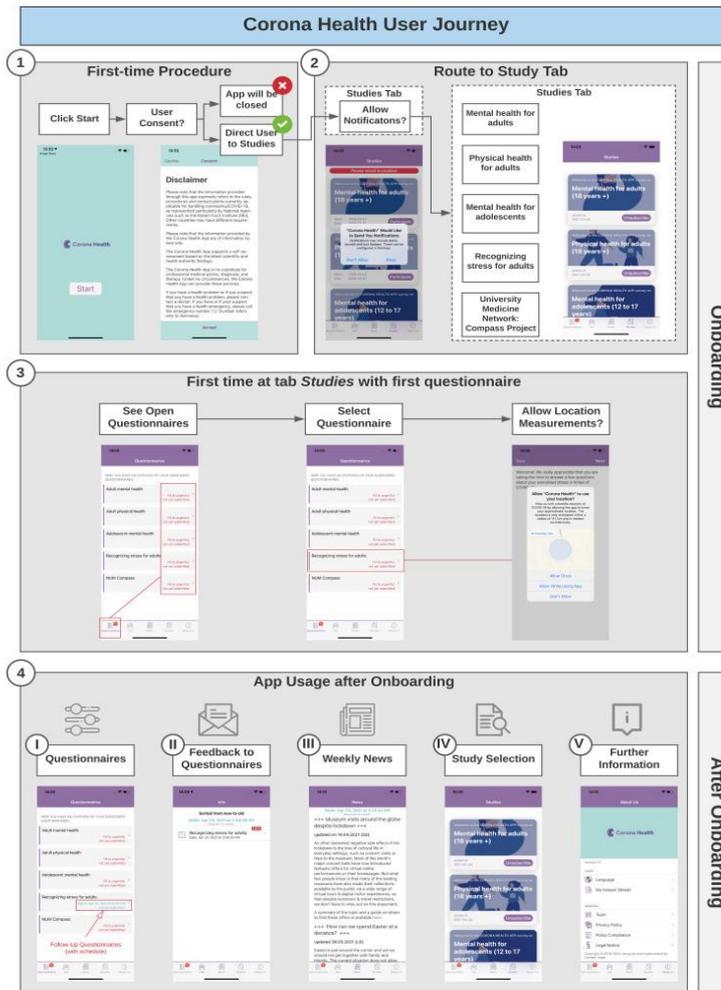
Time point	PReDicT group		TaU group		Difference between groups (95% CI)	P value
	N	Mean change (95% CI)	N	Mean change (95% CI)		
<i>GAD-7</i>						
Week 8	391	-6.12 (-6.83, -5.41)	389	-5.44 (-6.14, -4.74)	0.68 (0.03, 1.32)	0.040
<i>SAS-SR</i>						
Week 8	391	-7.60 (-8.57, -6.64)	389	-6.51 (-7.47, -5.54)	1.09 (-0.26, 2.45)	0.112
Week 24	274	-9.70 (-10.79, -8.61)	258	-7.48 (-8.60, -6.36)	2.22 (0.74, 3.70)	0.004
Week 48	228	-10.28 (-11.50, -9.05)	231	-9.60 (-10.81, -8.39)	0.68 (-0.73, 2.08)	0.346

Browning ... **Deckert ... Menke ...**

The clinical effectiveness of using a predictive algorithm to guide antidepressant treatment in primary care (PReDicT): an open-label, randomised controlled trial
Neuropsychopharmacology 46(7):1307-1314, 2021.

- Apps

Application of Apps allow population wide assessment of mental health including anxiety during COVID 10 pandemic.



Beierle ... **Deckert, Deserno ... Hein ... Romanos ... Weiß,** Pryss.

Corona Health-A Study- and Sensor-Based Mobile App Platform Exploring Aspects of the COVID-19 Pandemic
Int J Environ Res Public Health 18: 7395, 2021

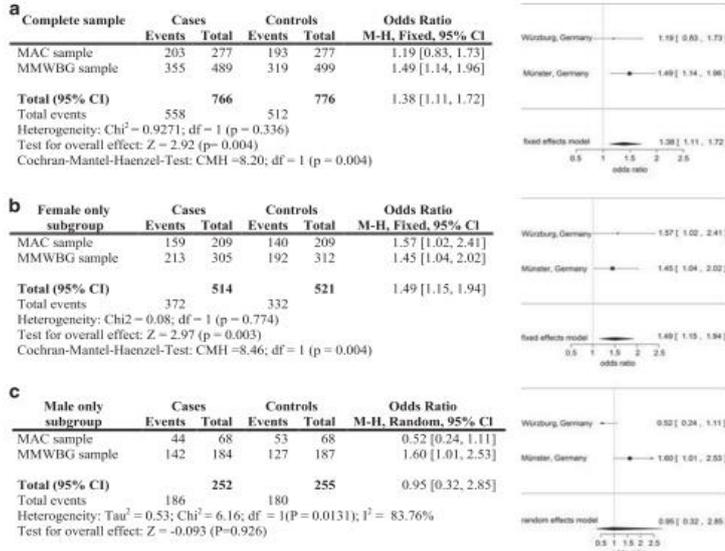
2. Translational perspective

This will be highlighted with six examples:

- ***Research on neuropeptide S as a new option for pharmacological intervention***
- ***Research on generalization as new option for psychotherapeutic intervention***
- ***Multicenter Therapy Trials***
- ***TDM and pharmacogenetics service***
- ***Comprehensive Anxiety Center***
- ***German Center for Prevention Research and Mental Health***

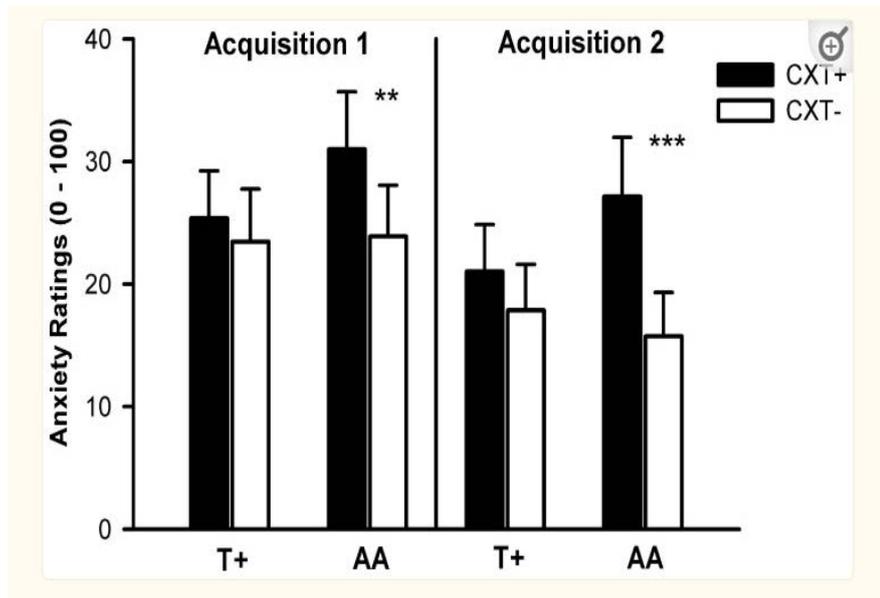
- **Neuropeptide S:**

Neuropeptide S receptor gene variation is associated with categorical and dimensional fear and anxiety phenotypes



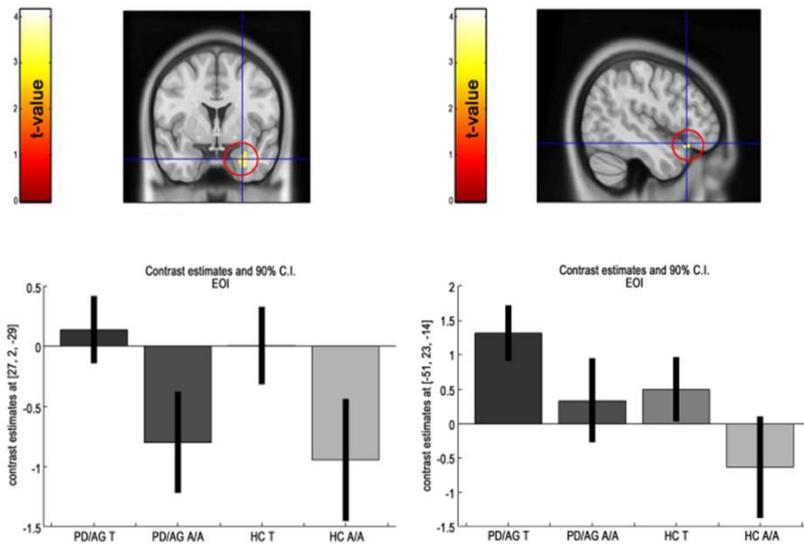
Domschke, Reif, Weber ... Baumann ... Jacob ... Erhardt ... Pauli ... Deckert
Neuropeptide S receptor gene -- converging evidence for a role in panic disorder
Mol Psychiatry 16(9):938-48, 2011.

Neuropeptide S receptor gene variation modulates fear conditioning



Glitzbach-Schoon, Andreatta, Reif, Ewald, Tröger, Baumann, Deckert, Mühlberger, Pauli.
Contextual fear conditioning in virtual reality is affected by 5HTTLPR and NPSR1 polymorphisms: effects on fear-potentiated startle.
Front Behav Neurosci. 7:31, 2013.

Neuropeptide S receptor gene variation modulates fear circuitry

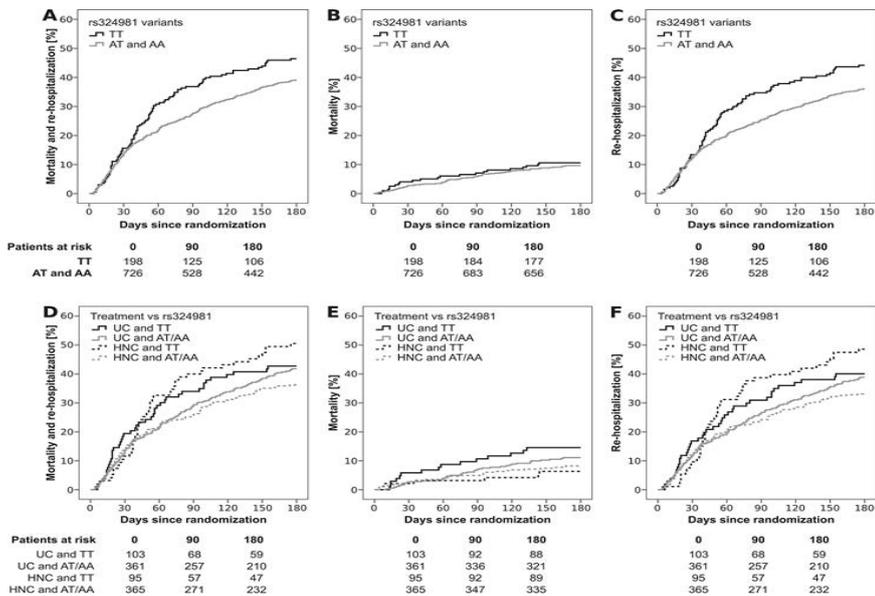


Gechter ... **Deckert, Weber, Herrmann** ...

Association of NPSR1 gene variation and neural activity in patients with panic disorder and agoraphobia and healthy controls

Neuroimage Clin 24:102029, 2019. doi: 10.1016/j.nicl.2019.102029.

Neuropeptide S receptor gene variation modulates therapy outcome



Angermann ... **Kittel-Schneider ... Deckert** ...

A functional variant of the neuropeptide S receptor-1 gene modulates clinical outcomes and healthcare utilization in patients with systolic heart failure: results from the Interdisciplinary Network Heart Failure (INH) Study.

.Eur J Heart Fail. 2017 Mar;19(3):314-323

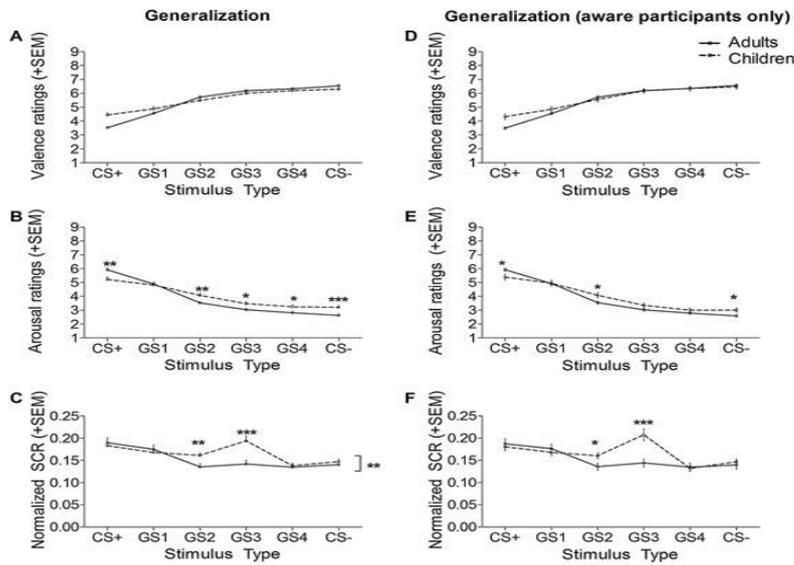
Next steps:

Prospective study on the relevance of neuropeptide S receptor gene variation as a predictor for psychotherapy outcome.

Probing into available neuropeptide S receptor antagonists as anxiolytics.

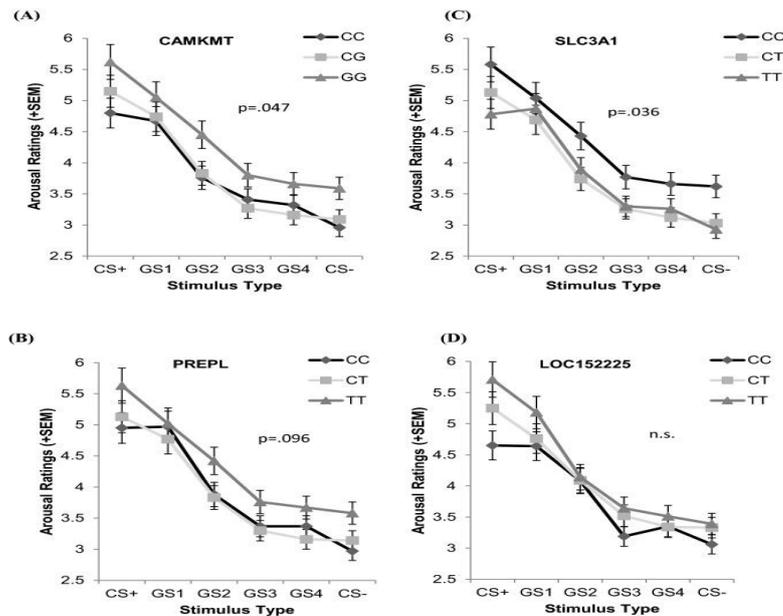
- **Generalization**

Anxiety endophenotype generalization is more pronounced in children than in adults.



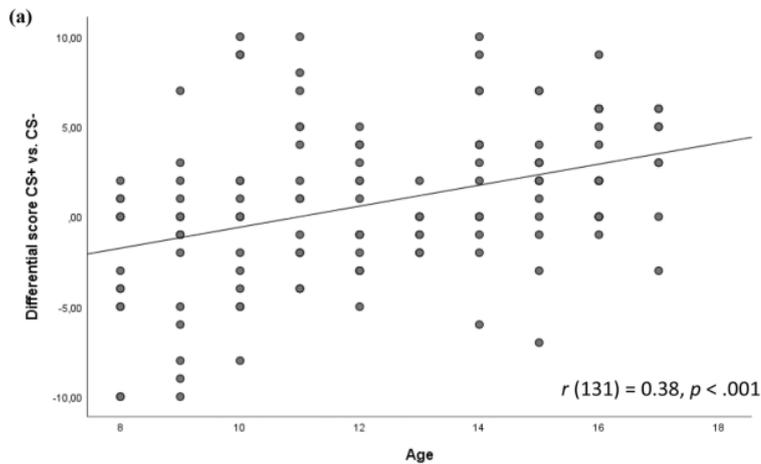
Schiele, Reinhard, Reif, Domschke, Romanos, Deckert, Pauli
 Developmental aspects of fear: Comparing the acquisition and generalization of conditioned fear in children and adults
 Dev Psychobiol 58(4):471-81, 2016.

GWAS genes for anxiety (ANGST study) are associated with psychometric anxiety phenotypes as well as the anxiety endophenotype generalization



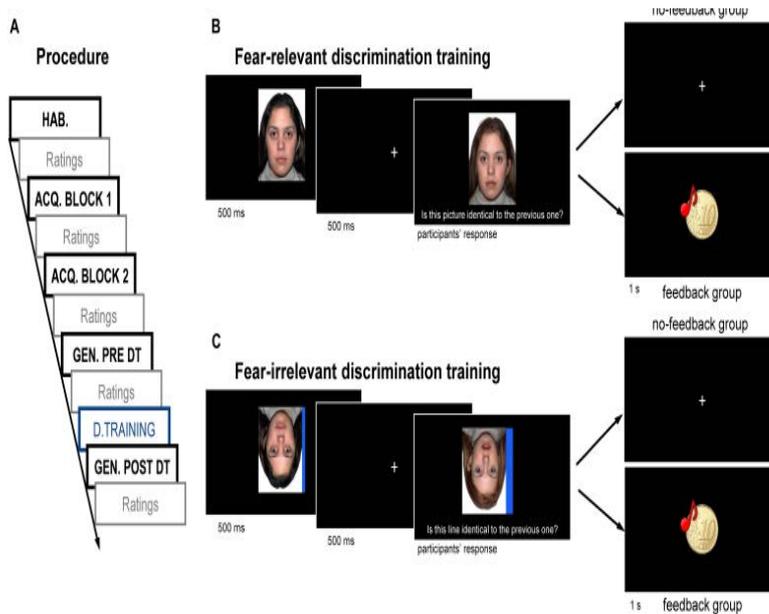
Reinhard, Drepper, Weber, Schiele, Kneer, Mittermeier, Frey, Reif, Pauli, Domschke, Deckert, Romanos.
 Anxiety risk SNPs on chromosome 2 modulate arousal in children in a fear generalization paradigm
 Eur Child Adolesc Psychiatry 29(9):1301-1310, 2020.

The anxiety endophenotype generalization decreases with age in children.



Reinhard, Slysckak, Schiele, Andreatta, Reif, Domschke, Gamer, Pauli, Deckert, Romanos.
 Fear conditioning and stimulus generalization in association with age in children and adolescents.
 Eur Child Adolesc Psychiatry 2021, doi: 10.1007/s00787-021-01797-4. Online ahead of print.

Anxiety endophenotype generalization can be reduced by discrimination training.



Herzog, Andreatta, Schneider, Schiele, Domschke, Romanos, Deckert, Pauli.
 Reducing Generalization of Conditioned Fear:
 Beneficial Impact of Fear Relevance and Feedback in Discrimination Training.
 Front Psychol 12:665711, 2021, doi: 10.3389/fpsyg.2021.665711.

Next steps:

A DFG application for a 2nd follow-up on the relevance of generalization as a predictor for the development of anxiety disorders has been approved.
 Prospective study using discrimination training as an add-on to exposure training.

- **Multicenter therapy trials**

To facilitate participation in multicenter AMG and MPG trials psychiatrists and psychologists have been systematically trained and the number of study nurses has been extended to a total of 4 assuring a continuous service during ongoing studies. This allowed us to contribute to interdisciplinary innovation-fund projects such as ZSE-Duo and Acht which are guideline –relevant studies für Centers of Rare Diseases and Adipositas centers. In addition, it ascertains our participation in up-coming multi-center therapy trials

1. Theta Burst stimulation in depression

Multicenter study on the efficacy of theta-burst stimulation in depression (lead Tübingen, BMBF-funded).

First patient has been included at adult psychiatry (Herrmann, Polak) in 04/2022.

2. CARE

Multicenter trial investigating the PRONIA protocol including a MRI scan and basis for a secondary preventive intervention in at-risk patients for schizophrenia (lead Düsseldorf, Innovation fund-funded).

First patient at adult and child&adolescent psychiatry (Kittel-Schneider, Deserno) to be included 10/2022.

3. P4D

Multicenter trial investigating the potential of genetics for personalized treatment in depression (lead Hanover, BMBF-funded). Würzburg work package is to develop a pharmacokinetic genetic testing kit.

First patient at adult psychiatry (Unterecker, Weber) to be included in 04/2023.

4. Network University Medicine (NUM) COVID-19 projects

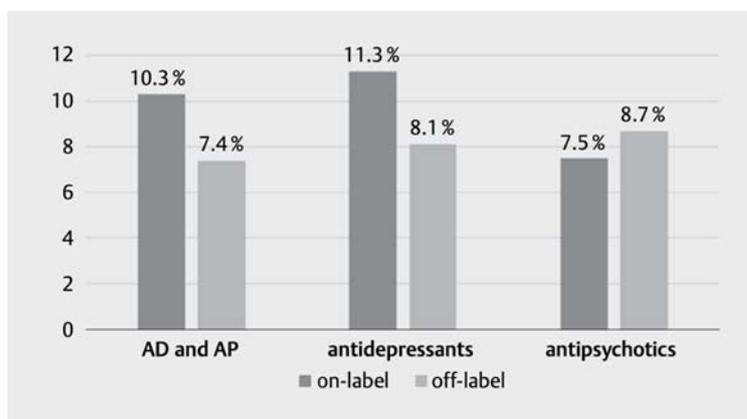
Participation in *NapKon* providing mental health phenotyping batteries (Deckert and Hein) and *egePan* on mental health consequences for health system employees (Unterecker) during first funding period (2020-2021), *NapKon-Tip* as an adaptive trial platform with study on post-COVID, *CollPan* on mental health consequences in risk groups and *UTN* on use of digitalization strategies in COVID-19 pandemic during second funding period (2022-2023).

- **Therapeutic drug monitoring and pharmacogenetics**

In 2017 the therapeutic drug monitoring platform was switched from HPLC to a Mass Spectrometry platform supported by DFG Large equipment funding.

This platform is performing app. 50 000 analyses/year and is serving not only the two Würzburg university psychiatries, local practitioners and regional hospitals such as the two district hospitals Lohr and Werneck, but also university hospitals such as that of the University of Frankfurt and various specialized child and adolescent (university) hospital departments associated in a competencenetwork and running a common patient registry (www.tdm-kjp.com).

As BfArM reference laboratory it contributed to a low adverse event rate during psychopharmacotherapy in children and adolescents (TDM-VIGIL, BfArM).



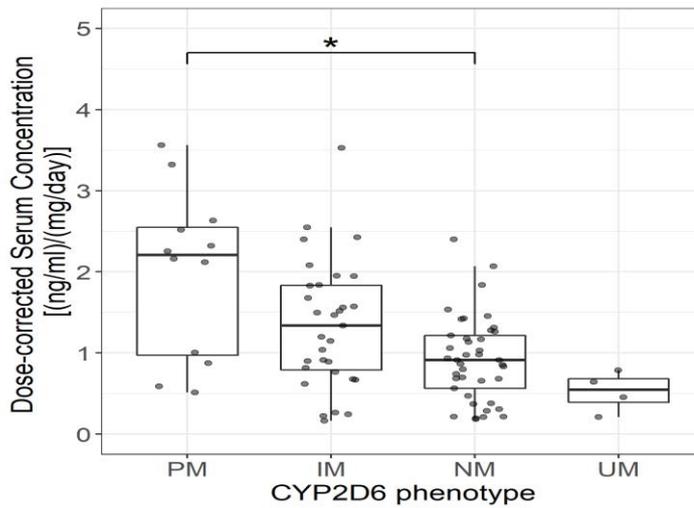
Egberts, Gerlach, ... Heuschmann, Unterecker, Scherf-Clavel, ...Fekete, Taurines, Romanos.

Serious Adverse Drug Reactions in Children and Adolescents Treated On- and Off-Label with Antidepressants and Antipsychotics in Clinical Practice. *Pharmacopsychiatry* 2022. doi: 10.1055/a-1716-1856. Online ahead of print.

In 2021 the therapeutic drug monitoring platform was complemented by a pharmacokinetic genetic testing platform for Cyp2D6 and Cyp2C19.

<https://www.ukw.de/psychiatrie/zuweisende-kolleginnen-und-kollegen/tdm-labor/>

This follows a recommendation of the Gene Diagnostic Committee of the German Secretary of Health and own data demonstrating that under naturalistic conditions Cyp2D6 and Cyp2C19 testing can indeed predict serum levels.



Scherf-Clavel et al., Pharmacopsychiatry 2022 accepted

Based on a commercial diagnostic kit using Maldi-ToF technology a novel and improved diagnostic kit was developed and validated according to RiLiBÄK criteria By PD Heike Weber and after a one-year pilot phase at the department is now offered also to external users.

This service is unique in German psychiatry and will enhance patient safety during pharmacological drug treatment.

- ***Comprehensive Anxiety Center***

This center has been established on the model of Comprehensive Cancer Centers and the Comprehensive Heart Failure Center.

<https://www.ukw.de/clinical-profile-centers/comprehensive-anxiety-center-cac/homepage/>

It is a so-called A-Center of the Bavarian Hospital Plan allowing for additional funding. As a psychiatric A-Center it is unique in Bavaria and to our knowledge in Germany.

It consists of the CMH psychiatries and 9 partner hospitals in Bavaria and Baden-Württemberg.

Its mission is

- to disseminate guidelines into clinical practice in hospitals
- foster cooperation between psychiatrists and psychologists in hospitals
- provide training in anxiety therapies for psychiatrists, psychologists, therapists and nurses in hospitals
- offer case conferences for difficult-to-treat anxiety patients
- provide a network for clinical research on anxiety disorders
- meet at least once a year for a scientific conference.

Due to the pandemic its realization beyond the annual meeting which this year takes place just prior to the ESAB meeting on June 22 proved difficult.

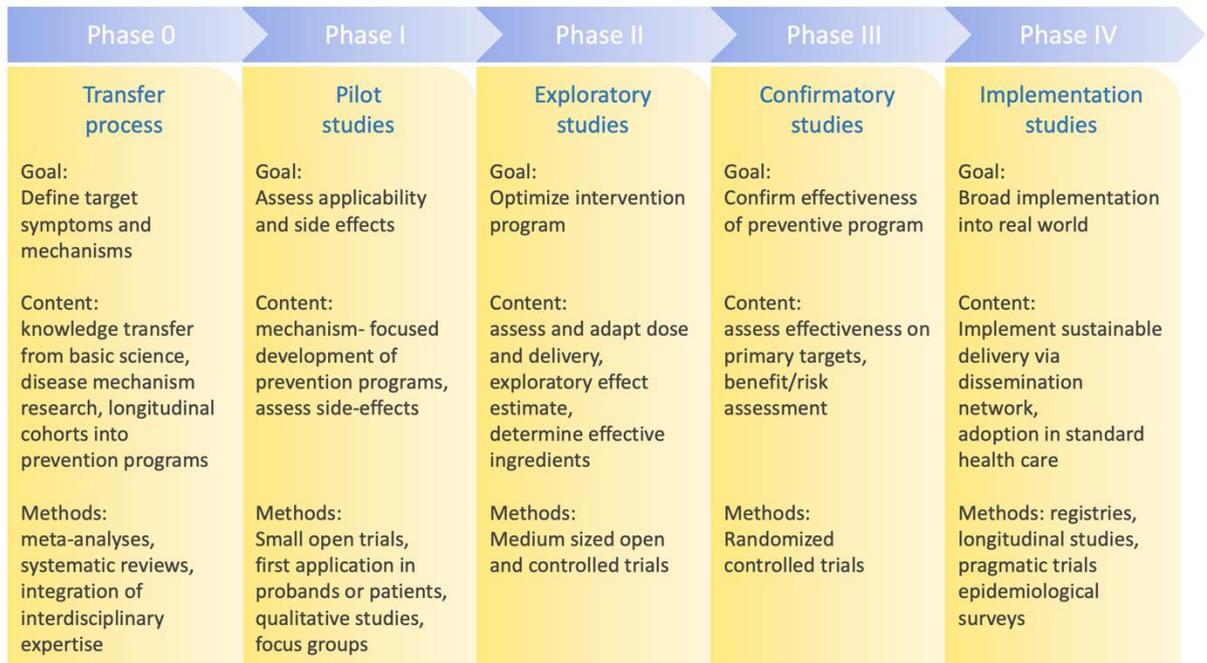
On-site educational visits which had just begun prior to the pandemic could not continue, digital meetings necessary for case conferences at first were not possible due to the lack of digital infrastructure in non-university hospitals.

Nevertheless, even during the pandemic large psychiatric hospitals such as Nürnberg and Bamberg joined the Center.

With the end of the pandemic we are therefore confident that we will be able to restart the Center and use its possibilities to the better of anxiety patients.

- **German Center for Prevention Research and Mental Health**

Construction on the building at the Hubland campus and the outpatient prevention service at downtown Würzburg is ongoing. Temporary housing is provided. The DZPP pursues a truly translational approach by transferring mechanistic insight into preventive approaches. A sequential phase model aims at providing broad implementation of evidence-based programs.



The DZPP has initiated various projects on **primary prevention**, e.g. school-based cluster-randomized RCTs (“DUDE”) or VR-based pilots on cyber-mobbing transferring evidence-based therapeutic elements into a preventive setting.

<https://www.med.uni-wuerzburg.de/dzpp/institut/projekte/>

The medical psychology section of adult psychiatry with its focus on rehabilitation, i.e. **secondary and tertiary prevention** is extending its focus on mental health:

<https://www.psychotherapie.uni-wuerzburg.de/forschung/forschung.html>

A W1 professor position on prevention of dementia and dementia complications is currently filled.

This Center is currently being established, thus many aspects of it are still virtual at present.

However:

Its interdisciplinary structure with participation of developmental psychiatry and psychology as well as other disciplines under the lead of Marcel Romanos as a joint institute of University Hospital and University is unique in Germany and will facilitate prevention research on Mental Health at Würzburg and beyond.

3. Mentoring and Career development

According to Würzburg university culture specific programs are complemented by interdisciplinary programs allowing for interdisciplinary exchange.

To assure participation of clinicians and scientists interested in mental health, members of the CMH are also members of these interdisciplinary program boards.

A common feature of all structured programs beyond interdisciplinary mentorates of 3-4 scientists and annual meetings are skills courses and obligatory presentation of research results at national and/or international congresses.

The following strategies are employed to recruit excellent clinicians and scientists:

Undergraduate studies (human medicine, psychology, biology):

1. Clinical orientation of medical psychology curriculum
2. Participation in psychology bachelor curriculum
3. Elective courses with clinical topics for medical students
4. Internships for psychologists and biologists at the psychiatry departments
5. Integration of clinical topics as a consequence of the curricular reform

Graduate studies (human medicine, psychology, biology, neuroscience)

1. Short- and long-term internships at the psychiatry departments
2. Elective courses with clinical and scientific topics
3. English-speaking Elite Master Translational Neuroscience
4. Elective participation of medical students in the elite master translational neuroscience
5. Mentoring of medical students during structured MD theses with skills courses
6. Establishment of "Day of University Psychiatry" with lectures by external scientists (Meyer-Lindenberg, Grabe) and internal scientists (Deckert, Hein)

At all levels there are special programs for female clinicians and scientist and boards representing program students.

In summary, this allows mentoring of clinicians and scientists from undergraduate studies to tenure track professorships.

Examples are:

- Graduate Students

Elite Master Translational Neuroscience

<https://www.med.uni-wuerzburg.de/transneurosci/elite-graduate-program/>

Program Coordinators: Sendtner, Deckert

Coordinator: Villmann

Your "Masterplan" for studying the Master of Science "Translational Neuroscience"



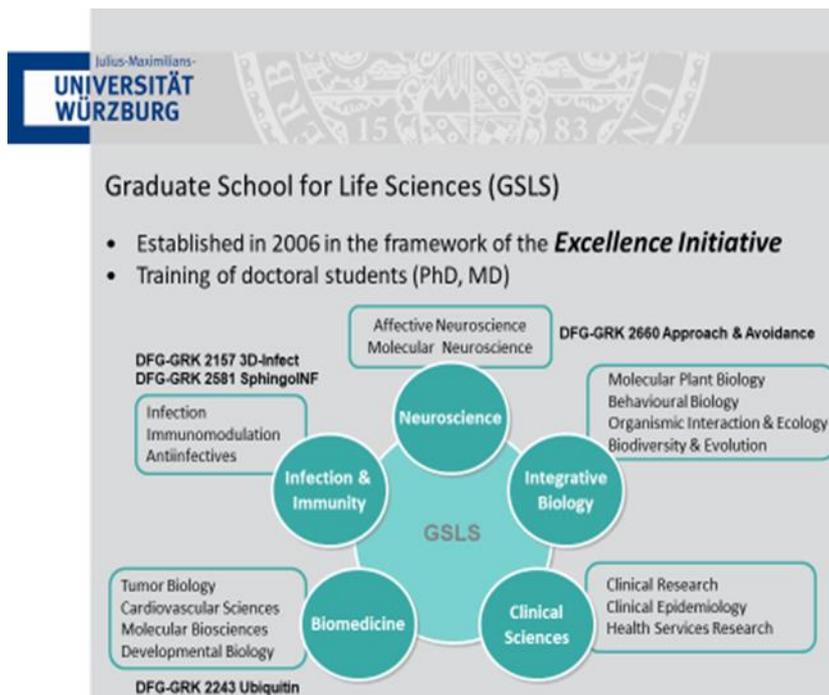
1.FS	Advanced lectures in Translational Neuroscience 1 (5 ECTS)	Advanced Seminar in Translational Neuroscience 1 (5 ECTS)	Advanced lectures in Translational Neuroscience 2 (5 ECTS)	Advanced Seminar in Translational Neuroscience 2 (5 ECTS)	Methods in Neurosciences (5 ECTS)	Advanced lab 1 (5 ECTS)	30 ECTS
2.FS	Advanced lectures in Translational Neuroscience 3 (5 ECTS)	Advanced Seminar in Translational Neuroscience 3 (5 ECTS)	Advanced lectures in Translational Neuroscience 4 (5 ECTS)	Advanced Seminar in Translational Neuroscience 4 (5 ECTS)	Seminar Module 1 (5 ECTS)	Seminar Module 2 (5 ECTS)	30 ECTS
3.FS	Advanced lab 2 (10 ECTS)		Advanced lab 3 (10 ECTS)		Seminar Module 3 (5 ECTS)	Seminar Module 4 (5 ECTS)	30 ECTS
4.FS	Master Thesis (25 ECTS)					Master Colloquium (5 ECTS)	30 ECTS
	Compulsory (2 SWS)		Elective compulsory (2 SWS)		Elective compulsory (AL 1: 2 SWS; AL 2/3: 4 SWS)		Thesis (6 months)

- PhD Students

Graduate School of Life Sciences - Neuroscience Class

<https://www.graduateschools.uni-wuerzburg.de/life-sciences/startseite/>

Speakers: Sendtner, Gamer



RTG 2660 Approach/Avoidance (integrated in GSLS)

<https://www.uni-wuerzburg.de/grk2660/startseite/>

Speaker: Gamer

Steering Committee: Hein, Tovote

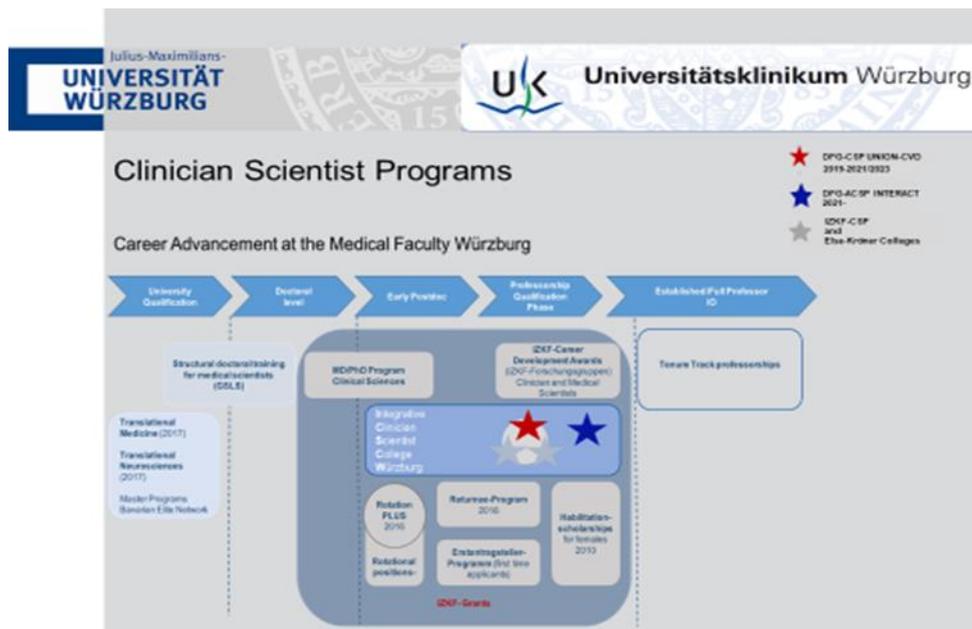


- Clinician Scientists

Integrative Clinician Scientist College

<https://www.med.uni-wuerzburg.de/izkf/integrative-clinician-scientist-college-wuerzburg/>

Steering Committee: Deckert



DFG-Clinician Scientist program UNION-CVD (integrated in ICSC)
<https://www.med.uni-wuerzburg.de/izkf/integrative-clinician-scientist-college-wuerzburg/clinicianscientist-programm-understandinginterorgannetworksincardiacandvascular diseases/>
 Steering Committee: Deckert

