

# EADC Resident and Research Fellow Section (RRFS)

## Exchange through internship programs

### Name and location EADC hosting center

Department of Psychiatry, Memory Clinic and Alzheimer Prevention Center, University Hospital Cologne

### Link to center's website

<https://psychiatrie-psychotherapie.uk-koeln.de/klinik/ambulante-behandlung/spezialambulanz-gedaechtnisstoeuerungen/>

<https://psychiatrie-psychotherapie.uk-koeln.de/klinik/koelner-alzheimer-praeventionszentrum/>

### PI of the EADC hosting center

Frank Jessen (PI), Ayda Rostamzadeh (Co-PI), Franziska Maier (Co-PI)

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### Description of the center

The **Memory Clinic** and the **Cologne Alzheimer Prevention Center** at the University Hospital of Cologne are dedicated to research, diagnosis, and treatment related to cognitive disorders, particularly Alzheimer's disease and other forms of dementia. We cooperate with the Jülich Memory Clinic and the German Center for Neurodegenerative Diseases (DZNE) to ensure the highest medical standards for patients and study participants. Both centers work closely with national and international partners in research, sharing findings to improve diagnostic methods, develop therapeutic approaches, and enhance prevention strategies.

#### 1. Memory Clinic (Zentrum für Gedächtnisstörungen)

The Department of Psychiatry and Psychotherapy of the University Hospital of Cologne co-leads an interdisciplinary Memory Clinic with the Department of Neurology. The memory clinic is a specialized clinic focusing on early diagnostics and treatment of cognitive disorders. The center is a leading institution in Germany for research into cognitive decline and dementia, offering a comprehensive diagnostic approach. This includes clinical and neuropsychological assessments, MRI scan, PET scans (amyloid and/or tau and/or FDG) scans, blood sample collection and cerebrospinal fluid analysis.

Approximately 400 new patients are diagnosed at the Memory Clinic per year. Its multidisciplinary team includes neurologists, psychiatrists, psychologists, neuroscientists, nurses and study nurses who assess and treat patients with early stages of Alzheimer's disease, mild cognitive impairment (MCI), and other forms of dementia. We collaborate closely with the Dep. of Neurology and Nuclear Medicine, Institute of Radiology and Laboratory Medicine and have implemented a weekly interdisciplinary case conference.

**Services:**

- **Diagnostic Services:** Detailed evaluations including neuropsychological testing, neuroimaging (e.g., MRI, PET scans), laboratory tests (blood sampling, lumbar puncture) to diagnose cognitive disorders accurately.
- **Treatment & Care:** The center may offer medications and discuss other treatment options (e.g. drug therapy, neuropsychological therapy, psychotherapy, occupational therapy, language training), to manage symptoms and improve the quality of life for patients and family members. Furthermore, counseling from social workers and our patient information center are offered.
- **Research:** The center is involved in research to understand the biological mechanisms behind cognitive disorders and to develop innovative treatments. This includes participation in clinical trials and collaborations in third-party funded national and international research projects.

**2. Cologne Alzheimer Prevention Center (Kölner Alzheimer Präventionszentrum)**

The **Cologne Alzheimer Prevention Center** is a research facility specifically focused on the prevention of Alzheimer's disease and related dementias. The center seeks to identify and mitigate risk factors for Alzheimer's before the disease fully develops, aiming for early intervention to delay the onset of dementia.

**Services:**

- **Risk Assessment:** The center conducts studies for assessments of patients at risk for Alzheimer's disease, including genetic, environmental, and lifestyle factors. Risk factors such as family history, cardiovascular health, and lifestyle are considered in order to provide individualized prevention strategies.
- **Prevention Programs:** The center offers evidence-based programs aimed at reducing the risk of dementia through lifestyle changes (e.g., cognitive training) and other interventions like stress reduction.

- **Clinical Trials:** Non-pharmacological studies (e.g. nutrition-based intervention) are performed and the center is actively involved in clinical trials with a preventive approach to treat asymptomatic individuals at higher dementia risk. The focus is on pharmaceutical and lifestyle interventions to delay or prevent the onset of the disease.
- **Public Education and Outreach:** The center offers resources for patients and their family members and the general population to better understand dementia, its symptoms, and the available treatments, with the overall aim to raise awareness for brain health in the public. Amongst others, a Prevention Registry (with now 1700 participants) has been established. Participants receive a regular newsletter free of costs with information on dementia prevention and new research findings.

## Internship program

### For physicians

For physicians a 2 to 4-week program is offered with the following components:

- Consultations: Attendance in the consultation (first patient visit, disclosure of test results (including neuropsychological testing, blood sample, cerebrospinal fluid, MRI, PET-Scans) and communication of diagnosis, counseling on treatment options.
- Neuropsychological Assessment: Candidates will assist in conducting detailed neuropsychological assessments.
- Lumbar puncture: Attendance during lumbar puncture is possible.
- Weekly conferences: Attendance in weekly research group meetings (Mondays) and the interdisciplinary case conference (Thursdays) is possible.
- Consultation for late-life depression: Additionally, it is possible to attend the consultations for late-life depression.
- Prevention courses: We run courses for cognitive training and progressive muscle relaxation, which can be attended during the program.

- Clinical research activities: Candidates may observe and engage in our clinical research activities, including clinical trials and third-party funded national/international research projects, to provide insights into how patients with or without cognitive impairment are managed and our research activities complement clinical assessments.

### **For researchers**

The Memory Clinic Register provides access to clinical register data from around 2,500 patients who have presented at the local center from 2015 to date. The patient cohort spans a spectrum from cognitively unimpaired individuals, including those with Subjective Cognitive Decline (SCD) to those diagnosed with Mild Cognitive Impairment (MCI) and dementia. This includes around 400 patients with a diagnosis of SCD and around 700 patients with a diagnosis of MCI. In addition, biomaterial samples from over 1000 test subjects can be used for research purposes via the biobank. Prof. Frank Jessen is the PI of the DELCODE study (Longitudinal Cognitive Impairment and Dementia Study), which aims the development of procedures for characterizing early stages of Alzheimer's disease, at improving prediction of the course of the disease and at identifying new markers for early diagnosis of Alzheimer's-related dementia. The group of participants includes persons with no complaints (healthy control subjects), patients with SCD and with slight memory impairment or mild dementia and first-degree relatives of patients with diagnosed Alzheimer's disease. A nation-wide follow-up study (DELCODE 2) will be implemented in 2025. The main areas of activity of the Cologne Alzheimer Prevention Center are public relations, individual prevention programs (cognitive training, progressive muscle relaxation, mindfulness training) and research (risk communication, risk stratification). During the 2–4-week program, candidates will gain a comprehensive understanding of the available data and develop research hypotheses within the interests of our center. Topics of interest include the clinical studies on SCD and MCI, such as their biomarker correlates, PET scan analysis, non-pharmacological studies with a focus on lifestyle-modification and improvement of mental health, research with patient involvement, and interdisciplinary projects with humanities and legal scholars.