

# Fast transformation between episodic and semantic memories: Interactions between the hippocampal formation and related regions and their breakdown in Alzheimer's disease

<https://neurodegenerationresearch.eu/survey/fast-transformation-between-episodic-and-semantic-memories-interactions-between-the-hippocampal-formation-and-related-regions-and-their-breakdown-in-alzheimer%c2%92s-disease/>

## **Principal Investigators**

### **Institution**

### **Contact information of lead PI**

### **Country**

European Commission

## **Title of project or programme**

Fast transformation between episodic and semantic memories: Interactions between the hippocampal formation and related regions and their breakdown in Alzheimer's disease

## **Source of funding information**

European Commission FP7-Seventh Framework Programme

## **Total sum awarded (Euro)**

€ 1,169,788

## **Start date of award**

01/02/2014

## **Total duration of award in years**

5.0

## **The project/programme is most relevant to:**

Alzheimer's disease & other dementias

## **Keywords**

### **Research Abstract**

Our memories define who we are and allow us to live independently. Conscious memory is commonly split into two components; "episodic memory" for events that are specific in time and place, and "semantic memory" for our conceptual knowledge about the world. The acquisition of both episodic and semantic memories depends upon the hippocampal formation (HF) and its

interactions with other brain regions. Disruption to this brain system causes dramatic memory impairment, notably in the case of Alzheimer's disease (AD). Current theories propose that episodic and semantic memory are either neuroanatomically inseparable, are independent, or that there is a gradual transformation from episodic to semantic over time. These theories fail to account for experimental evidence demonstrating the dynamic nature of human memory. TRANSMEM comprises a series of experiments designed to test a novel hypothesis; that semantic memory comprises high-level "structures" as well as "elements", and memories for events are rapidly transformed between episodic and semantic representations and vice versa. In doing so, TRANSMEM will answer fundamental questions about the human mind, such as "Why do we remember certain things but not others?", and "How do we store and retrieve our memories for the past?" Innovative methods, including the use of video clips and virtual reality, will be used to investigate memory for realistic materials. In a fully interdisciplinary approach, I will employ cutting-edge fMRI techniques and neuropsychology to establish how the HF interacts with other brain regions to mediate these transformations and how these processes break down in AD. Completion of the TRANSMEM project will lead to major advances in research and practice in experimental and clinical psychology, cognitive and behavioural neuroscience, neurology, and will be of interest to all scholars of the complexities of human mind.

### **Lay Summary**

**Further information available at:**

#### **Types:**

Investments > €500k

#### **Member States:**

European Commission

#### **Diseases:**

Alzheimer's disease & other dementias

#### **Years:**

2016

#### **Database Categories:**

N/A

#### **Database Tags:**

N/A