

Introductory Remarks to Symposium 4

Changing memories

Anni Richter and Christian Merz, Magdeburg and Bochum

After initial encoding, memories are stabilized during a process of consolidation. It has long been assumed that memory consolidation occurs only once, and that consolidated memories are stable and resistant to change - a view that has been challenged by findings suggesting that memories could be revised with each act of remembering. A memory may re-enter an unstable state after its reactivation, thus requiring another phase of stabilization, termed reconsolidation. Growing evidence suggests that the act of remembering could open a window of opportunity to change memory by pharmacological or behavioral manipulations. These manipulations have been used across memory domains, including emotional, episodic, and procedural memories. This line of research has significant implications for the adjustment of maladaptive thoughts and behaviors associated with memories in various mental disorders.

In this symposium, we will provide an overview on our current understanding of processes related to changing memories and present the most recent research in that field. We will furthermore report on the newest insights into the importance of such mechanisms for the treatment of mental disorders and discuss implications.

Wenbin Yang will highlight the importance of recovery effects of forgotten memories in the *Drosophila* model. Anni Richter will discuss how induced reconsolidation impairments can be rescued in instrumental learning tasks. Christian Merz will summarize how stress hormones can time-dependently change extinction memories, which is also critically relevant for extinction-based treatments such as exposure therapy. Daniela Schiller will show that focusing on the positive aspects after recall of negative events can lead to enhanced positive emotion and changes in memory content during recollection along with differences in brain activity. Bryan Strange will focus on pharmacological interventions following memory reactivation to selectively impair subsequent emotional episodic memory retrieval in a time-dependent manner, consistent with reconsolidation impairment.

Symposium 4

Wednesday, March 22, 2023
15:15 - 17:15, Lecture Hall 9

Chairs: Anni Richter and Christian Merz,
Magdeburg and Bochum

- 15:15 **Opening Remarks**
- 15:20 Wenbin Yang, Basel, Switzerland
RECOVERY OF A FORGOTTEN MEMORY IN
DROSOPHILA (S4-1)
- 15:35 Anni Richter, Magdeburg
RESCUE OF RELEARNING INDUCED RECON-
SOLIDATION IMPAIRMENTS IN INSTRUMENTAL
LEARNING TASKS (S4-2)
- 15:50 Christian J. Merz, Bochum
CHANGING EXTINCTION MEMORIES WITH
STRESS HORMONES (S4-3)
- 16:10 Daniela Schiller, New York, USA
MEMORY RETRIEVAL FACILITATES SUPPRESSION
AND RECONSOLIDATION UPDATE AT DIFFE-
RENT TEMPORAL SCALES (S4-4)
- 16:40 Bryan Strange, Madrid, Spain
TARGETING EMOTIONAL EPISODIC MEMORY
RECONSOLIDATION IN HUMANS (S4-5)
- 17:10 **Concluding Remarks**



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