

From the cell biology of stem cells to mathematical modeling of brain function

Initiative: Kurswechsel – Forschungsneuland zwischen den Lebenswissenschaften und Natur- oder

Technikwissenschaften

Ausschreibung: Qualifizierungskonzepte

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The brain is the most complex organ that has emerged during evolution. Intriguingly, higher cognitive abilities have ultimately led us to study how the brain itself forms and functions. Of many, learning and memory are among the most studied cognitive functions in all animals. Yet, despite the enormous progress in the study of the molecular, cellular and systemic basis of learning, a mechanistic understanding is still missing. Achieving this goal presents major challenges which require the combination of multidisciplinary approaches to first record and then interpret brain activity during behaviour from individual cells to whole networks. This project will capitalize on recent findings of the group showing that an increase in the number of neurons promotes cognitive abilities. By combining expertise in basic molecular cell biology of neural stem cells with technologies arising from bio-engineering, computational neuroscience and machine-learning, this grant will allow the group to acquire essential new qualification towards understanding, and perhaps promoting, cognitive performance.

Projektbeteiligte

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