Joel Richter, Ph.D.

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Bio: Joel D. Richter is a molecular biologist who has long studied mechanisms of translational control in development and in several tissues, including the brain. He is a professor in the Program in Molecular Medicine and a principal investigator at the Center for Collaborative Research in Fragile X Syndrome, both at the University of Massachusetts Medical School.

Richter’s research investigating translational regulation of synaptic plasticity by the RNA-binding protein CPEB evolved into several studies of fragile X syndrome (FXS) based on the observation that CPEB and FMRP interact. The Richter laboratory generated FMRP/CPEB double knockout mice and found that many biochemical and behavioral characteristics of FXS were ameliorated in these mice. In particular, the elevated brain protein synthesis in FXS model mice was returned to normal levels in the double knockout mouse. These studies propelled the lab to investigate the molecular function(s) of FMRP vis-à-vis translation. Such information will not only provide a molecular foundation for how protein synthesis goes awry in FXS, but also suggest new therapies to treat this disorder.