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Application of embryogenic mouse as a platform in identifying human missing proteins

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Missing proteins are those genes with detectable transcriptional mRNA while missed in detecting translational proteins either by mass spectrometry or Western blot. To date, missing proteins are thought as a "KEY" in triggering many early physiological responses and then disappear after these signaling cascades are turned on. That's why missing proteins are always "MISSED" in numerous studies. Embryo contains many definitive genes to temporarily control subsequent organogenesis. Since the decoding of human and mouse whole genome, their proteins share high similarity in amino acid sequence. The embryos taken from pregnant mice for 6.5, 7, 7.5 and 8 days, the time for the onset of neuron plate formation, were analyzed by mass spectrometry. There were 17 missing proteins identified. The Western blot showed that NKX1 (Chr#4), PTCHD1 (Chr#X), OTOGL (Chr#12) and ASXL3 (Chr#20) were increased in day 7 and 7.5, while decreased in day 8. This transient expression indicates an association of missing proteins in neuron development. As a result, the embryonic mice could be the most suitable platform for detecting missing proteins and elucidating their role in organogenesis.

Biography

Bin Huang gained his PhD degree from Department of Plant Science, National Taiwan University. He was also trained in Cardiology during Postdoctoral Fellow. Now he has the expertise in gaseous molecules-mediated post-translational proteome, particular for NO-mediated S-nitrosylation in the vascular system and also the behaviors of mitochondrial fusion/fission that evaluating cell aging and cancer cell drug-resistance. In addition to general research interests, he also has an administrative duty as a Vice Chief of Center for Stem Cell Research of Kaohsiung Medical University.

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