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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 no matter by western blot or mass spectrometry. To date, missing proteins are regarded as a "KEY" in triggering the early stage of many responses and then disappear once these signaling cascades have been turn on. That's why missing proteins are always "MISSED" in numerous tissues. Embryo contains many definitive genes, which might be the missing protein, that temporarily control the subsequent organogenesis. Since the decoding of human and mouse whole genomes were completed, the similar protein sequence appears in mouse can mostly be identified in human database. The embryos taken from mice after pregnant for 6.5, 7, 7.5 and 8 days, the stage for the onset of neuron plate formation were analyzed by mass spectrometry. There were 6/127 missing proteins located on chromosome 4 identified, including unnamed proteins, TMEM155 precursor, mutant enamelin, uncharacterized protein C4orf51 and THAP domain-containing protein 6. These missing proteins exhibited a possible implication in neural system development. In addition to Chromosome 4, a software facilitates the algorithm matching of 23 chromosome from mass spectrometric raw data and human database was designed. As a result, 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 also trained by Cardiology during his Post-doctoral fellowship. Now he has expertise in gaseous molecules-mediated post-translational proteome 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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