Composition of CECR2 Protein Complexes in Mouse Tissues

Nhu P. Trieu, Farshad H. Niri, Heather E. McDermid*

University of Alberta

POSTER

CECR2 is a chromatin remodeling protein involved in development. Loss of CECR2 in mice results in a severe brain abnormality (exencephaly) due to a neural tube defect. In Cecr2 mutants that do not show exencephaly, kidney defects, and sub-fertility in both males and females are also seen. These different outcomes indicate that CECR2 likely has multiple roles.

Lazzaro and Picketts previously identified mouse homologs of the *Imitation Switch* (ISWI) family of ATPases genes, Snf2h and Snf2l, which encode for chromatin remodeling proteins that interact with other subunits. Despite sharing 80% identity at the protein level, they are implicated in different functions. While SNF2H is hypothesized to be involved in proliferation, SNF2L is hypothesized to be involved in differentiation.[1]

SNF2H has already been previously identified in a complex with CECR2 in embryonic stem cells and adult testis. Further characterization of SNF2H and/or SNF2L binding with CECR2 in other tissues such as embryonic kidneys and adult ovaries can help us understand the composition of CECR2 complexes and the role of CECR2. Using co-immunoprecipitation, SNF2L binding with CECR2 has been implicated in both embryonic kidneys and adult ovaries, giving support to the hypothesis. These results suggest that there is tissue specificity in the subunits of the CECR2 containing chromatin remodeling complex.

References

Lazzaro, M. A., and Picketts, D. J. Cloning and characterization of the murine *Imitation Switch* (ISWI) genes: differential expression patterns suggest distinct developmental roles of Snf2h and Snf2l. *J. Neurochem.* ***77,*** 1145-1156 (2001).