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Current Research

Over the past decade, several studies on the subcellular distribution of the plaque proteins of adhering junctions have revealed that a number of such proteins are not only constituents of cell-cell contact structures but also found dispersed in the cytoplasm and nucleus. This dual location suggests that in addition to establishing and maintaining cell adhesive functions these proteins may also play roles in nuclear and ribonucleoprotein processing mechanisms. The most well characterized molecule in this regard is β -catenin, a member of the armadillo protein family. This protein is part of the wnt signal transduction pathway and complex partners in the adhering junction, the cytoplasm and the nucleus are known. We focus our studies on the members of the p120 subfamily of armadillo proteins, the proteins ARVCF, p0071, neurojungin and plakophilins 1-3. To identify protein complexes of junction proteins in their non-junctional state different extraction protocols, immunoselection experiments followed by mass spec analysis and localization studies are performed. Using both overexpression and knock down approaches followed by functional studies effects of novel interaction partners are characterized.

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Future Projects and Goals

The contribution of the members of the p120 subfamily to signaling cascades in healthy and malignant situations will be evaluated.

Selected Publications

Hofmann, I., Casella, M., Schnölzer, M., Schlechter, T., Spring, H. Franke, W. W. (2006). Identification of the junctional plaque protein 3 in cytoplasmic particles containing RNA-binding proteins and the recruitment of plakophilins 1 and 3 to stress granules. *Mol.Biol. Cell* 17, 1388-1398.

Hofmann, I., Schnölzer, M., Kaufmann, I., and Franke, W. W. (2002). Symplekin, a constitutive protein of karyo- and cytoplasmic particles involved in mRNA biogenesis in *Xenopus laevis* oocytes. *Mol. Biol. Cell* 13, 1665-1676

Hofmann, I., Mertens, C., Brettel, M., Nimmrich, V., Schnölzer, M., Herrmann, H. (2000). Interaction of plakophilins with desmoplakin and intermediate filament proteins: an *in vitro* analysis. *J. Cell Sci.* 113, 2471-2483.

Mertens, C., Hofmann, I., Wang, Z., Teichmann, M., Sepehri Chong, S., Schnölzer, M., and Franke, W. W. (2001). Nuclear particles containing RNA polymerase III complexes associated with junctional plaque protein plakophilin 2. *Proc. Natl. Acad. Sci. USA* 98, 7795-7800.