

## **Gene expression and Localization of Aquaporin 8 and 9 in Mouse Ovary**

Hyung Joon Kim, Hyun Sang Shin, Moon Kyoo Kim, Yong-Dal Yoon  
Department of Life Science, Hanyang University

The folliculogenesis in mouse ovary is characterized, in part, by the formation and expansion of the fluid-filled antrum. Development of this cavity requires the water influx from the outside of follicle, which may occur by the transcellular and/or pericellular transport mechanism. Recently, it is reported that aquaporins (AQPs), a family of major intrinsic membrane proteins, function as molecular channels for the water transfer in and out across the plasma membranes according to the osmotic gradients. The present study was to determine AQP8 or AQP9 mRNA are expressed in the mouse ovary and, if present, to determine the location of these aquaporins. The ovaries were collected from the prepubertal mouse at 24, 48, and 72 hrs after PMSG injection. The gene expression of AQP8 and AQP9 was detected by RT-PCR. Both gene expressions were decreased at 24 hrs after PMSG injection, but increased at 48 and 72 hrs after PMSG injection. It suggested that newly increased cells during follicle growth expressed aquaporin genes less than already existed cells. However, Immunoblot analysis indicated that the molecular weights of AQP8 and AQP9 proteins were 28 kDa and 32 kDa, respectively. By Immunocytochemistry, AQP8 was heavily stained on the stroma cells and slightly stained on the granulose cells. This is the first report that AQP8 and AQP9 are expressed and localized in the mouse ovary. And it may be play very important role in antrum formation of follicle in mouse ovary.