

# Investigation of the role of association of hyaluronan and desmosome proteins on skin function

**Masaki Takasugi**

*Department of Pathophysiology, Osaka Metropolitan University Graduate School of Medicine*

Hyaluronan (HA), a linear polysaccharide and a major component of the extracellular matrix, plays a role in supporting tissue structure and regulating cellular signaling pathways depending on its size. Here, we identified proteins that are associated with HA in the extracellular space and found that desmosome proteins, especially desmoplakin, were associated with HA. Our results suggest that HA is associated with desmoplakin in the blood, where HA is partially degraded. However, although such low molecular weight (LMW) HA is considered to be pro-inflammatory based on many *in vitro* studies, mouse transplanted with LMW-HA-releasing capsule did not show any differences in the transcriptome of liver, kidney, and spleen after 1 week of transplantation. In order to reveal the role of association between HA and desmoplakin, we need to understand the function of LMW HA and thus we generated transgenic mouse that has extra copy of hyaluronan synthase 2 (HAS2) gene. Long-term evaluation of this transgenic mouse will lead to understanding of the function of LMW-HA in the blood, and will ultimately allow us to investigate the role of association of hyaluronan and desmoplakin.