

### S53-3 **Role of zinc transporter in allergic reaction**

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Zinc is one of the essential trace elements. It is a structural component of a great number of proteins, including enzymes and transcription factors, and it is essential for their biological activity. Zinc has a variety of effects in the immune system. Therefore, cells have evolved a complex system to maintain a balance of Zinc uptake, intracellular storage, and efflux. However, it remains unknown how zinc homeostasis is regulated in mast cells and if zinc transporters are involved in allergic reactions. Here we show *Znt5/Slc30a5* is required for contact hypersensitivity, mast cell-mediated delayed-type allergic response, but not for passive cutaneous anaphylaxis, immediate response. In mast cells from *Znt5*<sup>-/-</sup> mice, Fc epsilon RI-induced cytokine production was diminished, but degranulation was intact. *Znt5* was essential for Fc epsilon RI-induced translocation of PKC to the plasma membrane and the nuclear translocation of NF-kappa B. In addition, we indicated that zinc finger-like motif of PKC was required for its plasma membrane translocation and binding to diacylglycerol. Thus, *Znt5* is selectively required for the mast cell-mediated delayed-type allergic response, and is a novel player of PKC signaling.