Phosphodiesterases (PDEs) and insulin signaling networks in the inner ear

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THE AIM is to [1] continue our work to map insulin and cAMP/PDE signaling networks in the inner ear using IHC and [2] to test the effect of PDE3/4/5 inhibitors on inner ear fluid homeostasis using MR as read-out. The RESULTS show that [1] a number of insulin related components and PDEs are expressed in human saccule and that [2] selected PDE inhibitors, with or without vasopressin, induce endolymphatic hydrops in mouse inner ear. IN CONCLUSION we have generated data of relevance for the association between diabetes and inner ear dysfunction reported on in literature and of relevance for Menieres disease. Thus, selective PDE3/4/5 inhibitors induced endolymphatic hydrops indicating important roles for selected cAMP and cGMP pools and associated insulin and other signaling networks.