

KIAA1199, a Deafness Gene of Unknown Function, is Overexpressed in Human Airway Smooth Muscle Cells

Bowie Shreiber, Nicholas Kim, Steven S. An
Duke University and Rutgers, The State University of New Jersey

KIAA1199, an inner ear-specific gene of unknown function, encodes the KIAA1199 protein, also known as cell migration inducing protein (CEMIP). KIAA1199/CEMIP is upregulated in a number of cancers and is associated with tumor growth and metastatic spread of cancer cells. Here, we find that CEMIP transcript is highly expressed in an RNA-seq dataset that consisted of primary human airway smooth muscle (HASM) cells derived from 17 white, non-smoking lung donors (Gene Expression Omnibus, GSE94335). Real-time qPCR was performed on HASM cells derived from 12 additional lung donors with and without asthma, and asthma-derived cells demonstrated a significant increase in CEMIP mRNA levels compared to non-asthma-derived cells. Western blot confirmed the differential CEMIP protein expression in asthma vs non-asthma HASM cells. Using a scratch-wound assay, we showed that asthma-derived cells migrated into the wound space at a slower rate than did non-asthma-derived cells. Future studies include siRNA-mediated knockdown of CEMIP and analysis of its effects on cellular motility and stiffness. Taken together, our studies identify a previously unrecognized role of CEMIP in the smooth muscle of human bronchi with potential therapeutic implications for asthma. Supported by R25ES020721 and the School of Graduate Studies.

