

Differential expression of potassium channels in placentas from normal and pathological pregnancies: Targeting of the Kir 2.1 channel to lipid rafts

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Potassium channels play important physiological roles in human syncytiotrophoblasts (hSTBs) from placenta, an epithelium responsible for maternal-fetal exchange. Basal and apical plasma membranes differ in their lipid and protein composition, and the latter contains cholesterol-enriched microdomains. In placental tissue, the specific localization of potassium channels is unknown.

Previously, we described two isolated subdomains from the apical membrane (MVM and LMVM) and their respective microdomains (lipid rafts). Here, we report on the distribution of Kir2.1, Kv2.1, TASK-1, and TREK-1 in hSTB membranes and the lipid rafts that segregate them. Immunoblotting experiments showed that these channels are present mainly in the apical membrane from healthy hSTBs. Apical expression versus basal membrane was 84 and 16% for Kir2.1 and Kv2.1, 60 and 30% for TREK-1, and 74 and 26% for TASK-1. Interestingly, Kv2.1 showed differences between apical membrane subdomains: $26 \pm 8\%$ was located in