



**Biochemistry and Molecular Biology
Brown Bag Series**

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***“DGK ζ interacts with ERK3 and counteracts
the promoting role of ERK3 in lung cancer
migration”***

Tuesday, September 14, 2021

11:00 AM

135 Oelman Hall

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Abstract Title:

DGK ζ interacts with ERK3 and counteracts the promoting role of ERK3 in lung cancer migration

Extracellular-Regulated Kinase 3 (ERK3) promotes cell migration and invasion in many cancers, including lung cancer. However, the mechanisms by which this atypical mitogen activated protein kinase (MAPK) is regulated remain poorly understood. In a yeast two-hybrid assay, ERK3 was shown to interact with diacylglycerol kinase ζ (DGK ζ), an enzyme which converts the diacylglycerol to phosphatidic acid. This interaction has been confirmed by co-immunoprecipitation and occurs mainly through the C34 domain of ERK3 and the C1 domain of DGK ζ . By immunofluorescence, these proteins were shown to co-localize in cells. *In vitro* lipid kinase assays and immunofluorescence revealed that ERK3 does not alter the enzymatic activity or localization of DGK ζ . Interestingly, DGK ζ reduces cell migration in lung cancer cell lines in a kinase-independent manner. Further, DGK ζ overexpression counteracts the promoting effect of ERK3 on cell migration. Currently we are endeavoring to determine the mechanism(s) by which DGK ζ antagonizes ERK3 activity, thereby inhibiting migration of lung cancer cells.