



Contribution ID: 104

Type: **not specified**

Lamellipodia-like membrane protrusions regulate the integrity of epithelial cell-cell adhesions

Friday, 17 November 2023 10:00 (15 minutes)

Metastasis suppressor protein 1 (MTSS1) is a membrane-interacting scaffolding protein that functions as a tumour suppressor in various carcinomas. MTSS1 binds phosphoinositide-containing membranes through its I-BAR domain, and can sense and generate negative membrane curvatures; however, the mechanisms by which MTSS1 localizes to cell–cell adhesions in epithelial cells and regulates their integrity and maintenance remain elusive. Using fluorescence and electron microscopy, we found that cell–cell adhesions of Madin–Darby canine kidney (MDCK) cells harbour lamellipodia-like, dynamic actin-driven membrane folds, which exhibit negative membrane curvatures at their distal edges. BioID proteomics demonstrated that MTSS1 forms a complex with actin-binding proteins in lamellipodia-like membrane protrusions at cell–cell adhesions. Inhibition of actin filament assembly at adherens junctions leads to defects in epithelial integrity. Together, these results support a model in which membrane-associated MTSS1, together with actin-binding proteins, promotes the formation of dynamic lamellipodia-like membrane protrusions that regulate the integrity of cell–cell adhesions in epithelial monolayers.

Primary author: Dr SENJU, Yosuke (Research Institute for Interdisciplinary Science (RIIS), Okayama University)

Presenter: Dr SENJU, Yosuke (Research Institute for Interdisciplinary Science (RIIS), Okayama University)

Session Classification: Partner

Track Classification: AfLS