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Pancreatic Ductal Adenocarcinoma Cell Secreted Extracellular Vesicles Containing Ceramide-1-Phosphate Promote Pancreatic Cancer Stem Cell Motility

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# **Pancreatic Ductal Adenocarcinoma Cell Secreted Extracellular Vesicles Containing Ceramide-1-Phosphate Promote Pancreatic Cancer Stem Cell Motility**

Running head (50 characters): PDAC secreted C1P mediates stem cell migration

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Author contributions: NK and AD contributed to and performed in vitro experiments, in vivo studies, analyzed and interpreted data, CS performed the C1P translocation studies and DLS analysis, DDL designed experiments, interpreted data, revised the manuscript, and participated in Western Blot and microscopy analysis, CWL performed vesicle isolation and studies, NA and RES provided pancreatic cancer cell expertise and critically reviewed the manuscript, RVS provided C1P expertise and critically reviewed the manuscript, MAS conceived the project, designed experiments, analyzed and interpreted data, and wrote the manuscript.

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Key words: sphingolipids, tumor dissemination, ceramides, Ceramide-1-Phosphate

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