

Research reveals insight into how lung cancer spreads

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A cellular component known as the Golgi apparatus may play a role in how lung cancer metastasizes, according to researchers at The University of Texas MD Anderson Cancer Center whose findings were reported in the Nov. 21 online issue of the *Journal of Clinical Investigation*.

The Golgi apparatus, often referred to as a cellular "post office" for its ability to package proteins into vesicles for transportation to other sites within or outside the cell, may offer a new therapeutic approach for preventing metastasis. Think of vesicles as miniature mail trucks composed of a fatty shell filled with secretory liquids that travel from the Golgi to destinations within the cell where their contents are put to use. The Golgi can appear as a compacted membranous "stack" near the cell's nucleus or as a dispersed system of interconnected membranes. Vesicles can "bud" from the Golgi in either form.

"Our findings show that certain proteins in the Golgi that control Golgi compaction may actually promote vesicle budding and transport and enhance the tumor cell's ability to metastasize" said Jonathan Kurie, M.D., professor of Thoracic Head and Neck Medical Oncology. "These findings highlight the potential utility of targeting certain cellular processes in the Golgi."

According to Kurie, tumor [cells](#) gain their metastatic ability through a Golgi-related process driving the budding and transport of secretory vesicles. Unknown before this study was whether Golgi compaction was responsible for vesicular trafficking leading to metastasis. This study

shows that Golgi compaction is associated with EMT or epithelial-to-mesenchymal transition, a process that allows a cell to detach and move away from its neighbors during wound healing and other normal processes and is thought to play a role in cancer cell migration.

Using lung adenocarcinoma cell lines isolated from mice and patients, Kurie's team found that EMT depends on a Golgi protein called PAQR11 for successful [tumor cell migration](#) and metastasis in lung cancers.

"We concluded that, through PAQR11, [tumor cells](#) can hijack a normal Golgi compaction process in order to gain metastatic ability," said Kurie.

Provided by University of Texas M. D. Anderson Cancer Center

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