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Galectin-1 seen as a target for anti-angiogenic therapy

NEW YORK (Reuters Health) - The protein galectin-1 (gal-1) is essential for tumor angiogenesis and is an attractive target for antiangiogenesis-based cancer therapy, researchers report in Proceedings of the National Academy of Sciences October 24.

Dr. Victor L. J. L. Thijssen from University Maastricht, the Netherlands, and an international team recently developed a potent angiogenesis inhibitor called anginex. "Although a broad profile of activities of anginex is known, such as prevention of endothelial cell adhesion and induction of apoptosis, the molecular target on tumor endothelial cells was never identified," they note.

Their latest work, reported in the PNAS paper, shows that gal-1 is the molecular target on tumor endothelial cells for anginex.

Gal-1 is overexpressed in tumor endothelial cells and plays a key role in endothelial cell proliferation and migration, Dr. Thijssen and colleagues report. Cultured endothelial cells with reduced gal-1 expression show suppressed proliferation and migration.

The importance of gal-1 in angiogenesis is illustrated in the zebrafish model, according to the team, where knocking out expression of the protein leads to dysfunctional and poorly organized blood vessels, they report.

"The role of gal-1 in tumor angiogenesis is demonstrated in gal-1-null mice, in which tumor growth is markedly impaired because of insufficient tumor angiogenesis," Dr. Thijssen and colleagues further report. In gal-1-null mice, antiangiogenesis treatment with anginex has no effect on tumor growth.

Taken together, these results strongly suggest that gal-1 regulates new blood vessel growth of tumors "and that targeting gal-1 can be an efficient angiostatic therapeutic strategy."