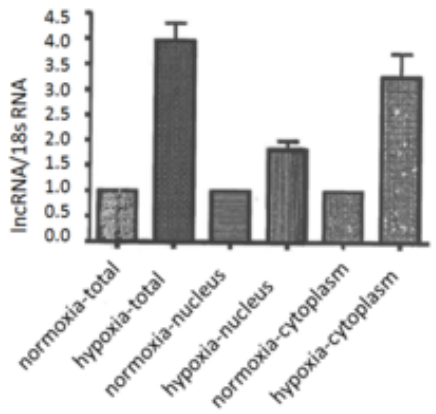
Technology Offer

lncRNAs in therapy and diagnosis of disease related angiogenesis

Reference Number 15-00371

Challenge

Angiogenesis is an essential mechanism which is often closely related to physiological changes during pathogenesis. A prominent example is the transition from a benign to a malignant tumor which is accompanied by pro-angiogenic activities. Therefore, it is of utmost importance to elucidate the molecular mechanisms of pathological angiogenesis. Recent studies could indicate the involvement of long non-coding RNAs (lncRNAs) in angiogenic signaling. LncRNAs are extracellular nucleic acids representing a novel class of regulatory molecules. Latest research identified lncRNAs as promising tools for the specific diagnosis and therapy of cancer or cardiovascular diseases. Accordingly, lncRNAs have great potential to form a novel class of diagnostic and therapeutic tools in disease related angiogenesis.



Expression of pro-angiogenic lncRNA

Technology

The technology relates to a recently discovered subset of lncRNAs which are significantly dysregulated during hypoxia. In particular, in-depth analysis could reveal a specific lncRNA with a remarkable pro-angiogenetic function in endothelial cells. Over-expression resulted in an enhanced transcription of various angiogenesis related genes. Due to a dynamic regulation of the transcriptome in pathological processes, the pro-angiogenic lncRNA emerges as a new and specific tool for diagnosis and therapy of pathological conditions, e.g. in cardiovascular diseases. Thus, the herewith presented lncRNA enables the timely treatment of disease onset and renders possible a therapy of the patient at an early stage.

Commercial Opportunity

In-licensing or collaboration for further development is possible.

Development Status

In vitro and *in vivo* studies for the identification and evaluation of angiogenesis-related lncRNAs were successfully performed. Further validation is in progress.

Patent Situation

Patents have been granted in Europe (EP 3134527B1, national validation in DE, CH, FR and GB) and USA (US 10,221,417B2) with priority of 2014.

Further Reading

Fiedler J, Breckwoldt K, Remmele CW, Hartmann D et al. 2015. Development of Long Noncoding RNA-Based Strategies to Modulate Tissue Vascularization. J Am Coll Cardiol. 66:2005-2015.
Thum T, Fielder J. 2014. LINCing MALAT1 and angiogenesis. Circ Res. 114(9):1366-1368.

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