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lncRNAs in therapy and diagnosis of disease related angiogenesis

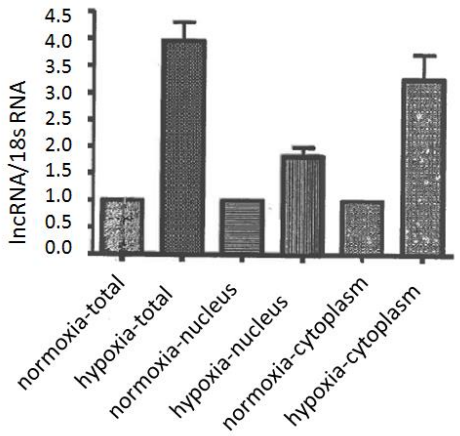
Keywords: lncRNA, angiogenesis, tumor, cardiovascular disease

INVENTION NOVELTY

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 a pro-angiogenetic lncRNA as a promising target 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.

VALUE PROPOSITION

The identified lncRNA enables the timely treatment of cardiovascular or cancer related disease onset and renders possible a therapy of the patient at an early stage.



Expression of pro-angiogenic lncRNA DSCAM.

TECHNOLOGY DESCRIPTION

The technology particularly relates to the lncRNA DSCAM which is significantly dysregulated during hypoxia. In particular, in-depth analysis could reveal 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 is preferred.

DEVELOPMENT STATUS

In vitro and *in vivo studies* for the identification and evaluation of the angiogenesis-related lncRNA were successfully performed.

PATENT SITUATION

Patents have been granted in Europe (EP 3134527B1, national validation in DE, CH, FR and GB) and USA (US 10,221,417B2; US 11,459,561 B2) .

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FURTHER READING

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Thum T, Fielder J. 2014. LINCing MALAT1 and angiogenesis. Circ Res. 114(9):1366-1368.

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