

miRNA profiling in premalignant lesions and early laryngeal cancer - preliminary results



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Innowacje

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Introduction



- 1/3 of head and neck squamous cell carcinomas (HNSCC) is laryngeal squamous cell carcinoma (LSCC)
- Current treatment: surgical and/or chemoradiotherapy → impairment of voice, breathing and swallowing functions
 - No improvement in 5-year survival rate of LSCC patients





18 to 24 nucleotides

regulating gene
expression at the post-
transcriptional stage

oncogenes/ suppressor
genes

high stability in
various body fluids

miRNA

cell proliferation,
differentiation

tissue-specific

intercellular
communication





Aim of the study



The aim of the study was to identify dysregulated miRNAs at the early stages of laryngeal carcinogenesis.





Materials and methods



2 patients
control group

without
dysplasia

low-grade
dysplasia

high-grade
dysplasia

invasive
cancer

1. Microlaryngeal
surgery



2. biopsy



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Materials and methods * * *



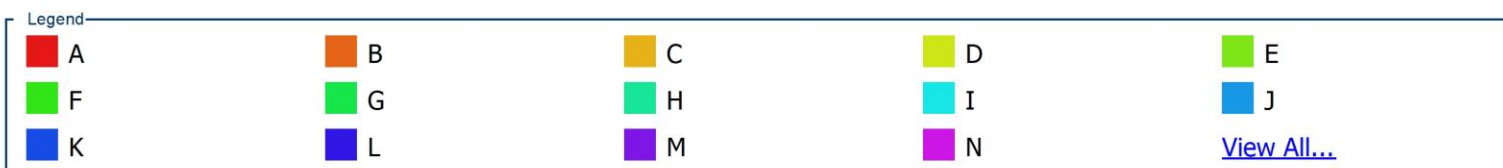
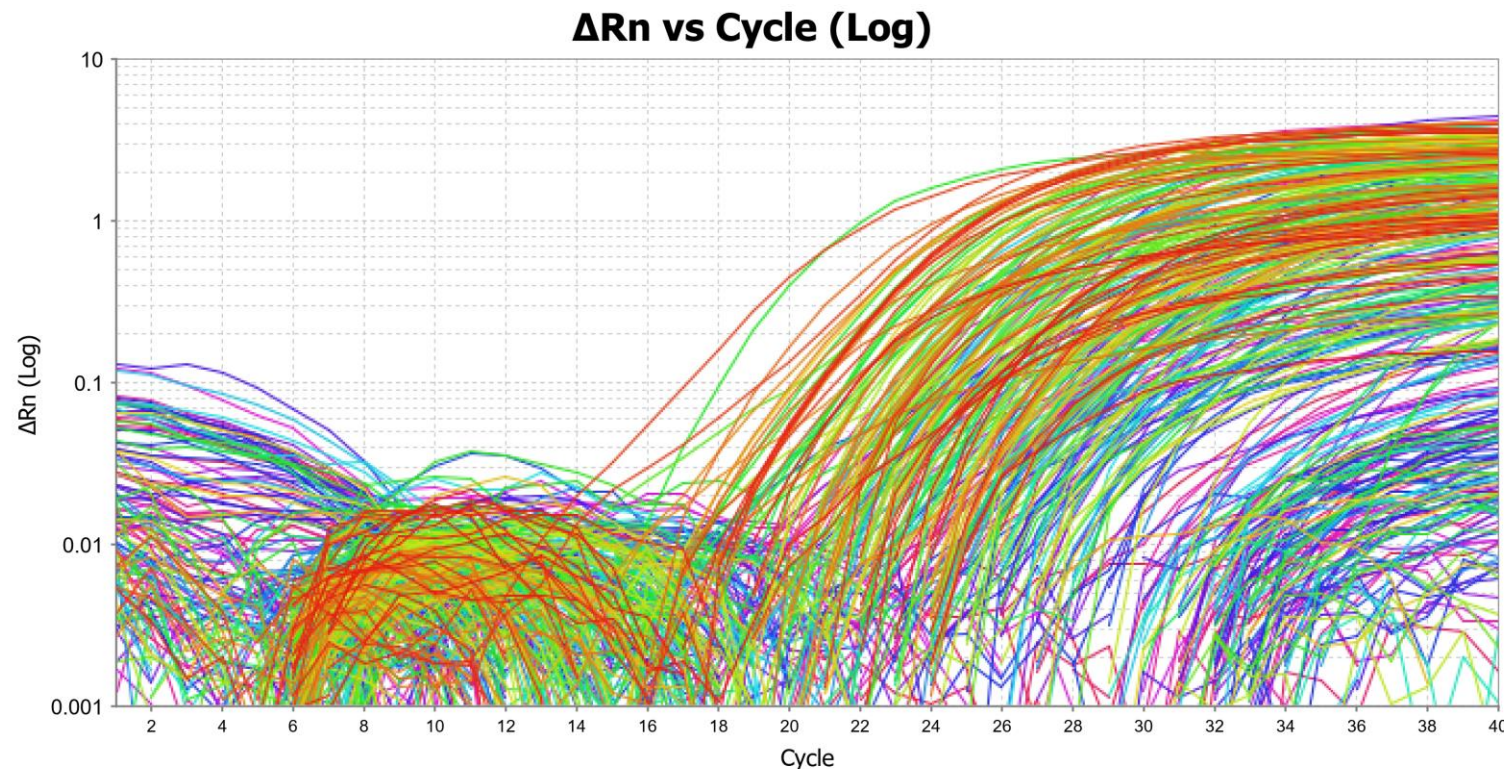
TaqMan™ Advanced miRNA Human A Card

Catalog number: A34714

1. miRNA **extraction** from sample
2. **purity** and **quantiti**
qualification
3. quantitative detection of **384** unique
microRNAs from human A Card from
each sample
4. miRNA-16-5p was used as
endogenous control



Materials and methods



Copy threshold (**Ct**) value
lower than **32** cycles

Schmittgen and Livak
(2008):

$$\Delta CT = CT_{\text{miRNA-explored}} - CT_{\text{miRNA-16-5p}}$$



Results

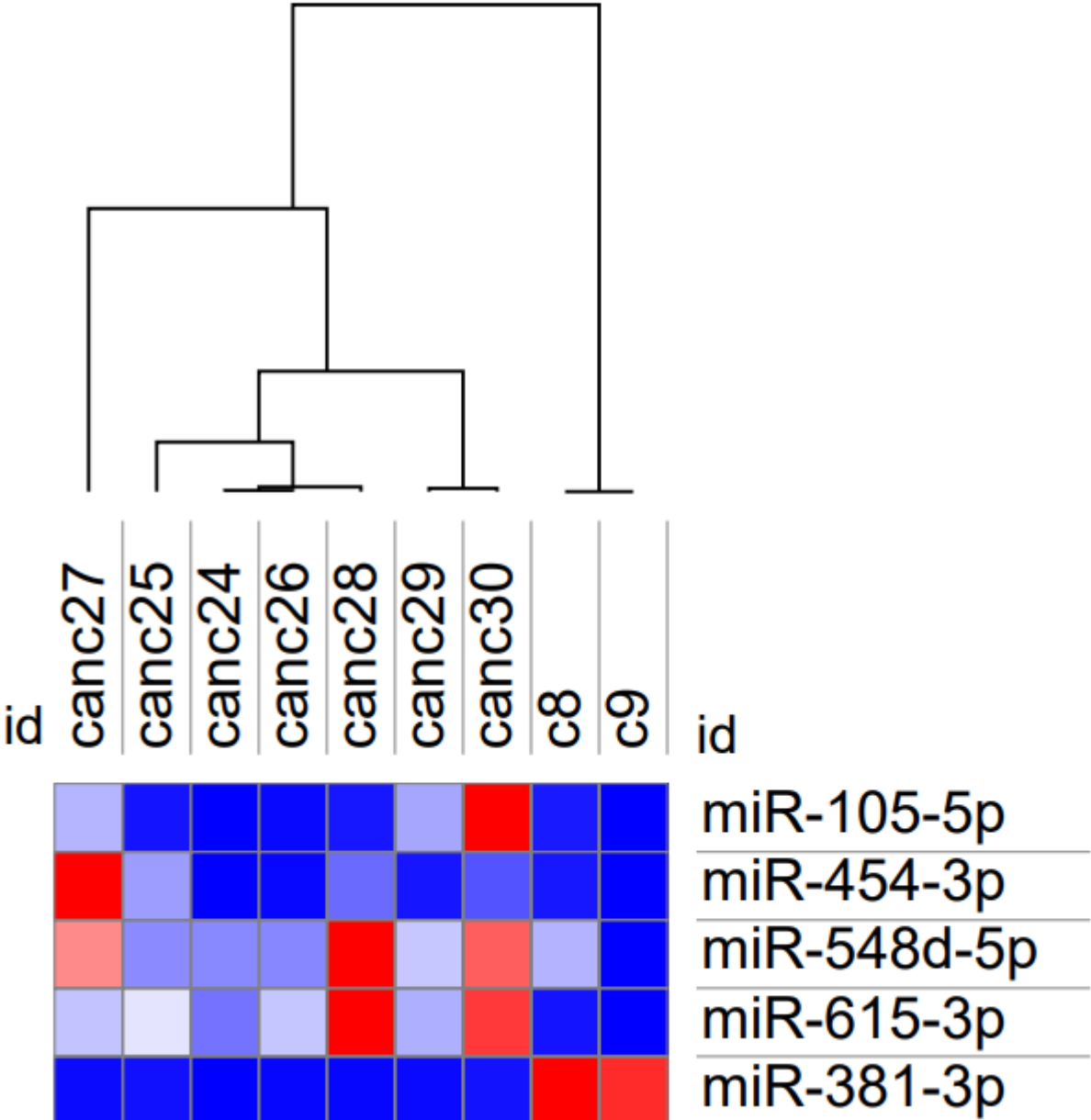


Target name	Control group (n)	Invasive cancer group (n)	Control group Mean dCT	Invasive cancer group Mean dCT
hsa-miR-381-3p	2	0	6,98	-
hsa-miR-105-5p	0	4	-	8,89
hsa-miR-454-3p	0	5	-	9,09
hsa-miR-548d-5p	0	6	-	10,57
hsa-miR-615-3p	0	7	-	7,87



row min

row max



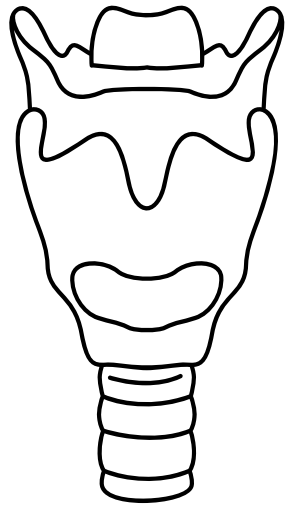


Conclusions

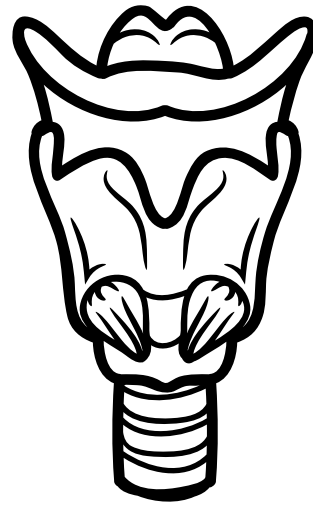


- Identification of the molecular mechanisms responsible for the progression of laryngeal cancer at early stages of dysplasia and malignant transformation may provide **a basis in the future for the development of various methods of personalized therapy** to prevent and/or inhibit the progression of laryngeal cancer.
- The long-term result will be the development of **miRNA panels characterizing individual stages** of carcinogenesis in the larynx.





Thank you for
attention :)



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