Review of cuproptosis-related lncRNA's potential as cancer biomarkers

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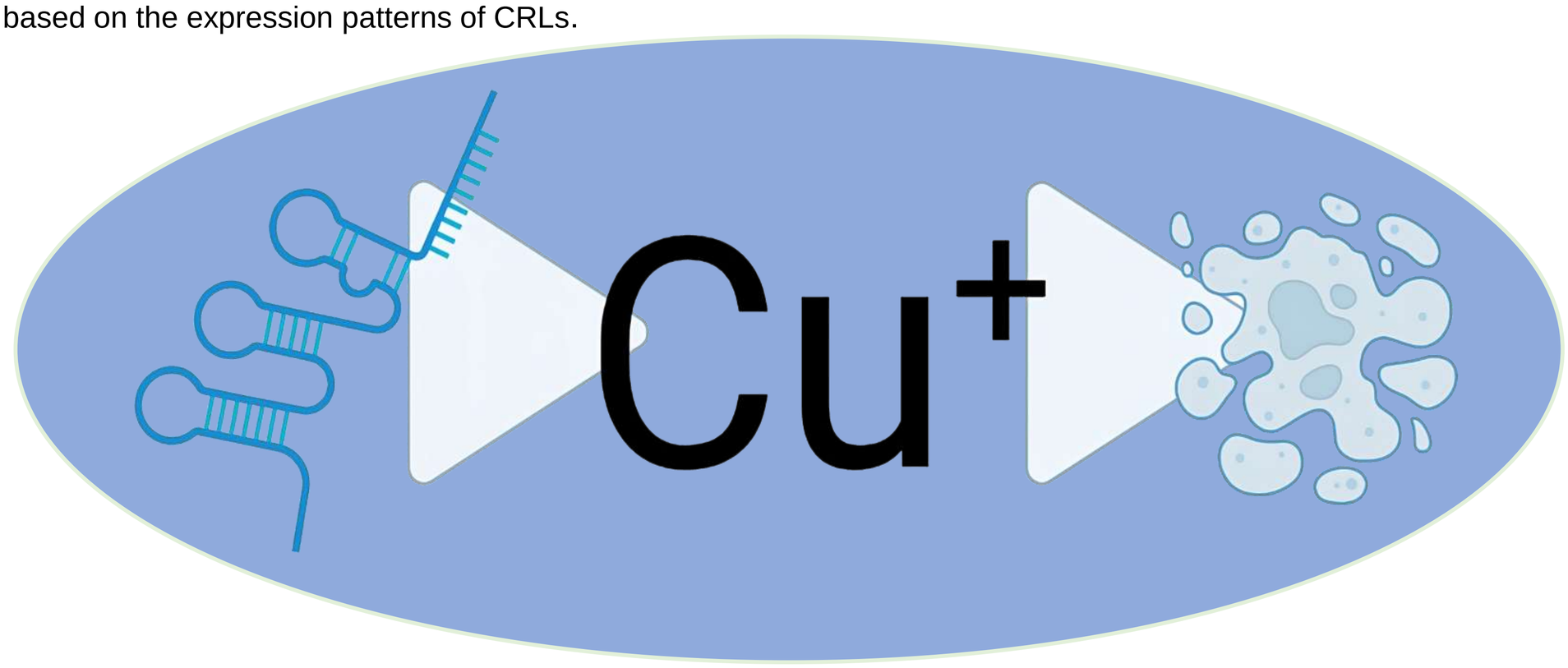
Introduction

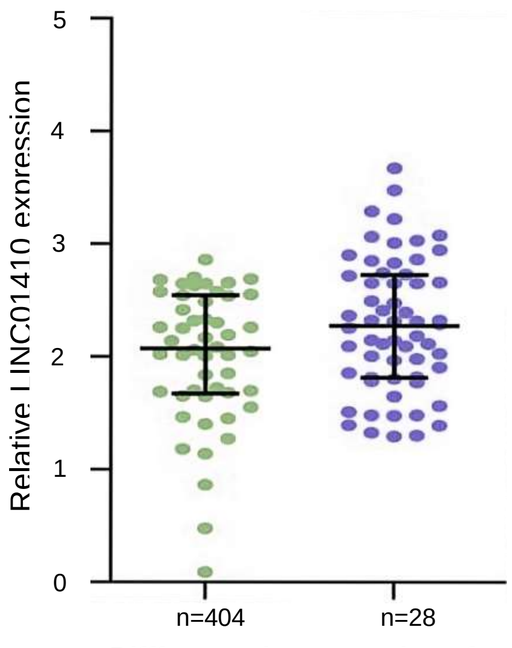
Cuproptosis is copper-dependent type of cell death, highly related to cellular metabolism, certain cancer types usually exhibits high aerobic respiration levels what concludes in differential expression of cuproptosis-related long non-coding RNAs (CRLs) observed in patients with various forms of cancer, suggesting their potential utility as biomarkers. To this end, researchers have developed numerous predictive signatures based on the expression patterns of CRLs.

Methods

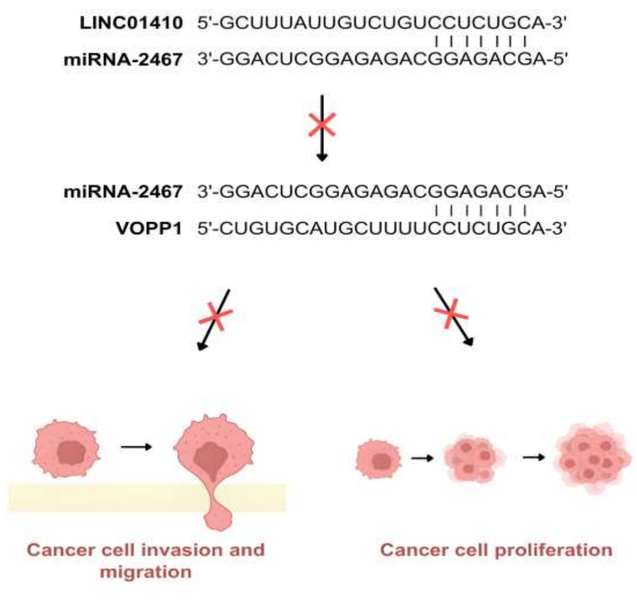
Data curation was performed with the help of PubMed and PubMed Central databases using the relevant keywords (e.g., 'cuproptosis', 'lncRNA', 'cancer biomarkers'). Eventually, 20 articles were thoroughly elaborated, and the lncRNAs with the highest prognostic potential were chosen.



CRLs and cancer



Diffference in expression of LINC01410 in normal and bladder cancer cells. Guo et al. 2021

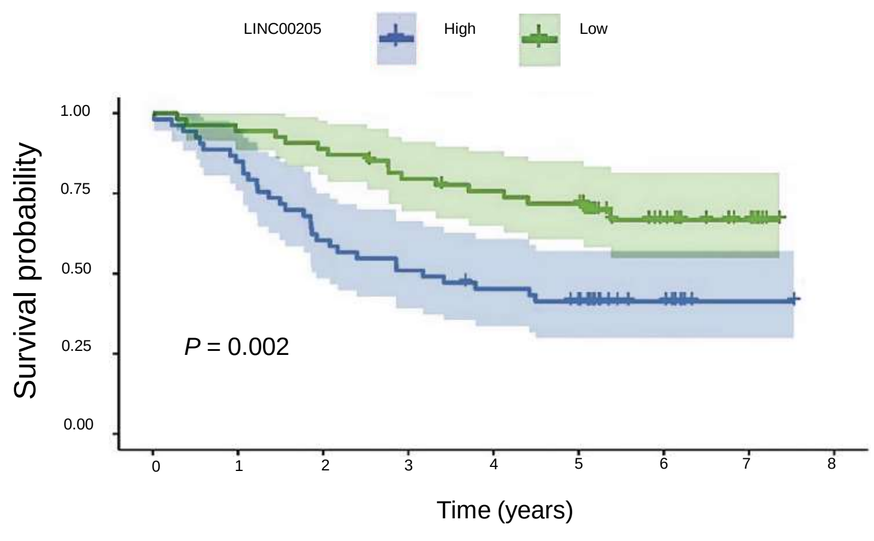


Mechanism of CRL LINC01410 promoting cervical cancer cells invasion, migration and proliferation via targeting miR-2467/VOPP1 axis. Liu et al. 2020

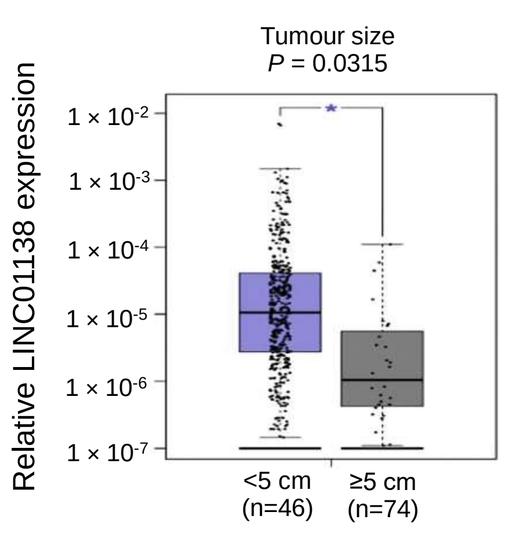
Conclusions

Remarkable progress has been achieved in the development of multiple lncRNA-based signatures linked to diverse biological processes. Clinical trials have been conducted for specific signatures, particularly those associated with the immune system. However, despite the strong evidence linking cuproptosis to different cancer types, research on CRL-based signatures remains limited, and the existing CRL-based signatures necessitate further clinical trials for validation.

Disease characteristics and CRLs expression



Overall survival. Huangfu et al. 2022



Correlation between LINC01138 expression and tumour size. Li et al. 2018

Acknowledge-ments

I extend my heartfelt thanks to the University of Wroclaw for the opportunity to continue my studies in Poland. I am are also grateful to the Armed Forces of Ukraine for their dedication in protecting whole Europe daily and enabling our scientific pursuits.