

Project 7.5 The role of micro RNA in chondrosarcoma pathobiology

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Background:

Chondrosarcoma (ChSA) is the second most common type of bone sarcoma (>20%) with 5-year survival in of 60%. Due to lack of targeted therapies and lack of clear gene candidate for new translational trials there is an unmet medical need and new projects on treatment targets in ChSa are warranted. We have selected to study microRNA- small noncoding RNAs (miRNA) that may be inhibiting gene expression post-transcriptionally - that is yet now well described in ChSa. MiRNAs show promise as diagnostic biomarkers. Their presence and altered expression patterns can aid accurate diagnosis as in the case of hepatomiR test from TAmiRNA or M371-test for Testicular Cancer from BioVendor. We are able to investigate high number of cases due to ChSa RNA biobank already in our hands. We aim to characterize miRNA profiles of 60 ChSa pts with next-generation sequencing. In the analysis phase patients will be clustered based on microRNA profiles. Pathways regulated by deregulated microRNAs in ChSa will be analyzed. Finally correlation analysis between clinical parameters and microRNA expression is also to be conducted.

Aim:

We aim to understand how post-transcriptional regulation contributes to ChSa phenotype and identify novel biomarkers. By analyzing miRNA expression patterns, we expect to describe the correlation with disease progression, recurrence, or therapeutic outcomes.

Requirements:

- MSc in biology, biotechnology, or related life science field,
- experience in NGS sequencing and NGS bioinformatic data analyses will be an advantage,
- experience with Statistica software use or R-language based statistics will be an advantage,
- experience in total DNA and RNA and isolation from cell culture or tissues,
- ability to work on site during Institute morning shift starting at 8.00 am,
- good Clinical Practice (GCP) certificate will be an advantage,
- fluency in English confirmed by at least 1 conference presentation in English or CAE/TOEFL certificate,
- involvement in data analyses and results dissemination,
- reference letter from MSc supervisor describing techniques used by PhD candidate