

Abstract

The circulating free DNA („Cell-free DNA“, cfDNA) is a type of extracellular DNA present in blood, with clinical use in prenatal diagnosis. The cfDNA is given great emphasis in connection with tumor diseases, where there is a great potential for its use in oncology, where free circulating tumor DNA is the most commonly used type. A suitable alternative to classical biopsy, which is safer and less painful for the patient and reflects the heterogeneity of the tumor is called Liquid biopsy, which can be used to obtain free circulating DNA from the blood. Most studies show that cfDNA provides the same information as tissue DNA, regarding both genetic and epigenetic changes detected in tumor cells and in some cases it enabled more sensitive or earlier detection of relapse in comparison with routinely used examinations. The high specificity and sensitivity of this non-invasive approach can be a great benefit to patients. However, to confirm its diagnostic and prognostic significance, it is necessary to expand the group of patients with individual diagnoses and, not only for the purpose of data comparison, standardize methods for the isolation and detection of cfDNA,

The aim of this thesis is to gain a general overview of free circulating DNA and its potential use in oncology.

Keywords: circulating free DNA, circulating tumor DNA, liquid biopsy