

ABSTRACT

Protein product tumor suppressor *PALB2* gene plays a major role in pathway of DNA repair of double-strand breaks through the homologous recombination mechanism. Significance of its pathogenic variants in hereditary forms of breast cancer in *BRCA1/2*-negative patients in families with multiple breast cancers may be in the Czech Republic comparable with the *BRCA2* gene. A role of the *PALB2* gene in sporadic breast cancer occurrence, which represent 90 – 95 % of all cancers, is still unknown.

This thesis focuses on inactivation pathway of tumor suppressor *PALB2* in the sporadic breast cancer by a mechanism of allelic loss detecting by loss of heterozygosity (LOH) of corresponding microsatellite markers and hypermethylation of promoter region as the most common mechanisms of inactivation tumor suppressors in early tumorigenesis.

In a group of 51 nonselected patients with sporadic breast cancer we found four samples with *PALB2* locus allelic loss. These samples were analyzed for somatic mutations. No mutation was found. There is no evidence of promoter hypermethylation in any of the samples.

Our data suggest a role of the *PALB2* gene inactivation in a minority group of sporadic breast cancers.