

# Biomedicine, maintenance and fortification of human's health

## METHOD OF DIFFERENTIAL TREATMENT OF ENDOMETRIAL CANCER

### Description

Cancer of the endometrium is one of the most common gynaecologic malignancies of the female genital tract. Despite its prevalence, the molecular mechanisms of endometrial carcinogenesis have been poorly understood. Previously we demonstrated that Tryptophan-hydroxylase-1 (Tph-1), the enzyme which participates at the first step of serotonin biosynthesis, is strongly elevated (2-100 times) in more than 70% of endometrial cancer tissue. Using Ribonuclease Protection Assay (RPA) method we analysed the level of mRNA for Tph-1 in tumours from 162 patients with endometrial cancer and in 54 non-cancer endometrial specimens. This study was conducted in collaboration with Max-Delbruck Center for Molecular Medicine Berlin, Germany.

### Innovative Aspect and Main Advantages

The expression of mRNA level for Tph-1 in tandem with standard morphology investigation can be used for appreciation of endometrial cancer aggressiveness and cancer treatment management offering the possibility to urgent the selection of patients for adjuvant therapy.

A high level of messenger RNA for Tph-1 is a feature of endometrial cancer samples characterized by histological findings that obviously will suggest a more favorable prognostic. Paradoxical, in the tissue with elevated level of Tph-1 the level of serotonin was conversely, lowered. On the other hand, the tumor tissue characterized by a low level of Tph-1 the coupling of monoclonal antibody for serotonin was increased. The expression of estrogen and progesterone receptors allowed a better comprehension of tumor aggressiveness that correlated with the level of Tph-1 and serotonin. The histological findings showed that endometrial cancer tumors with a higher level of messenger RNA for Tph-1, a lowered one of serotonin and a diminished density of estrogen receptors were better differentiated and had a lower potential for growth.

The decreased level of Tph-1 in endometrial tissue can be considered as a marker of adenocarcinoma aggressiveness and can be appreciated in the biopsy or postoperative specimen.

Endometrial cancer patients with a level of mRNA for Tph-1 between 3,6 and 13,8 conventional units are recommended to receive

mRNA for Tph-1 between 3,6 and 13,8 conventional units are recommended to receive adjuvant chemotherapy.

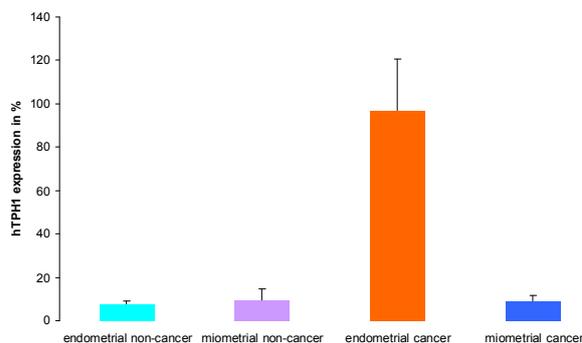


Fig.1. The expression of Tph-1 mRNA in cancer and non-cancer, endometrial and miometrial layers.

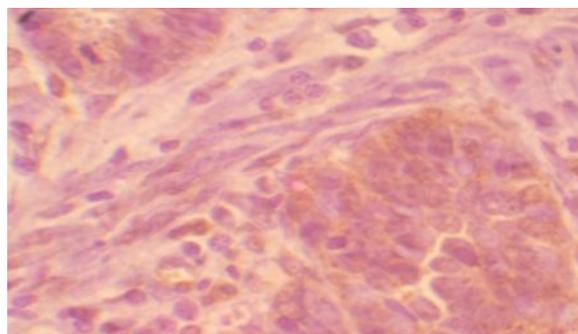


Fig.2. Immunohistochemistry with specific monoclonal antibody evidenced that Tph-1 is localized predominantly in neoplastic cells and is absent in stromal cells.

### Areas of Application

Gynecology Oncology

### Stage of Development

The methods is protected by Moldova patent:

- "Method of differentiated treatment of endometrial cancer" No 3244

The results were appreciated:

- International Salon of Patents, Brussels, Silver Medal, Eureka, 2007

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