

III. AIM OF THESIS WORK

Teneurins are a unique family of transmembrane proteins, conserved from flies and worms to man. However, very little is known about their biological function and mechanism of action in human. Moreover, experimental data concerning the molecular structure of vertebrate teneurin transcripts is scarce, and human ODZ4 messenger has not been subject to a detailed characterization before.

In addition to the prominent role of teneurins in the developing neural system, recent studies point to the possibility that the aberrant expression of some teneurins, mostly teneurin-2 and teneurin-4, could be involved in the carcinogenic process and in some tumor features, in a yet unknown mode. Accordingly, in our preliminary study and for the first time, we demonstrated that teneurin-2 (ODZ2) is expressed in breast and ovarian cancer cell lines as well as in frozen tumor samples. Nevertheless, it is not clear why ODZ2 is expressed in these tumor cell lines or what would be its function in these types of tissue.

The presence and potential function of teneurins in ovarian and breast cancer have not been investigated to date. Therefore, the goal of this work was to describe teneurin-4 (ODZ4) expression in breast and ovarian cancer-derived cell lines by RT-PCR experiments. Thus, to achieved the molecular description of ODZ4 transcript in this cell types, we intend to perform the following tasks:

- 1) To confirm the ODZ4 expression in human ovarian and breast cancer-derived cell lines
- 2) To characterize the ODZ4 transcript:
 - Respect to the predicted Reference Sequence structure described in GenBank database

- Respect to the type cell of origin
- To determine the length of protein-coding region
- To identify the ODZ4 full-length transcript expressed by human ovarian (SKOV3) and breast (MCF7) cancer-derived cell lines

Consequently, the results will be an initial approach for the elucidation of *in-situ* role ODZ4 and will contribute to generate new molecular knowledge that could be extended to the study of functional role of ODZ4 in human cancers.