**Title of the Contribution:**
HER2/neu, Topoisomerase 2a, Estrogen and Progesterone Receptors: Discordance between Primary Breast Cancer and Metastatic Axillary Lymph Node in Expression and Amplification Characteristics

**Abstract:**
Molecular classification of breast cancer (BC) and the evaluation of new biological markers such as estrogen receptor (ER), progesterone receptor (PR), ErbB2 (HER2) and topoisomerase 2a (Topo2a) status are claimed to be important parameters in the management of BC therapy. In case of heterogeneity between primary BC and metastatic site, this implies profound limitations of efficient systemic therapy. Therefore, it is essential to analyze whether biological markers of BC relate to identical expression profiles of metastatic lymph nodes (mLN). We used paraffin-embedded tumor tissue from 119 patients with at least 1 mLN. Immunohistochemistry (IHC) was used to analyze ER, PR, HER2 and Topo2a. In addition, HER2 and Topo2a amplification was evaluated by fluorescence/chromogenic in situ hybridization (FISH/CISH) in all samples with a HER2 score of 2+/3+ by IHC. Overall, the percentage of discordant marker status in the BC and its mLN was 2.6% for ER, 3.5% for PR, 3.4% for HER2, and 3.4% for Topo2a. With FISH/CISH, the amplification rate for Topo2a and HER2 was concordant in all cases. Because there are no prospective studies, it remains unclear whether these discrepancies have an effect on patient survival.

**Keywords:**