International symposium 3: Molecular pathogenesis and future perspectives of systemic drug treatment for breast cancer

**Metastatic breast cancer: time for action using in depth tumor molecular characterization**

Martine J. Piccart¹, Dimitrios Zardavas², Debora Fumagalli², Theodora Goulioti², Carolyn Straehler

¹Medicine Department, Institut Jules Bordet, Université Libre de Bruxelles
²The Breast International Group, Brussels, Belgium

Extensive molecular heterogeneity underpins breast cancer (BC), with few cancer-related genes showing recurrent mutations at high frequency. An increasing number of studies employing new, powerful high-throughput techniques are dissecting the genomic landscape of BC. Metastatic BC (MBC) remains largely an incurable disease, with most of the molecular analysis efforts focusing on primary BC. However, emerging data indicates that BC evolves on a molecular level during its life cycle. In an effort to tackle this issue, BIG has launched AURORA (Aiming to Understand the Molecular Aberrations in MBC), a large, multinational, academic MBC molecular screening program. Primary tumor tissue, as well as tissue from a metastatic lesion biopsy, will be collected from 1,300 patients with MBC who have received only one line of systemic treatment for advanced disease. Subsequently, both types of tumor material will be subjected to targeted next generation sequencing on a panel of cancer-related genes. These patients will be followed prospectively for clinical outcome, with treatment decisions made by the treating physician. AURORA is expected to improve our knowledge of the genomic landscape of MBC, helping us to understand its molecular evolution. Additionally, the coupling of molecular and clinical annotation will help us identify biomarkers of response and/or resistance to commonly applied BC treatments. BIG is also developing innovative clinical trials downstream of the AURORA screening, assessing molecularly targeted compounds for MBC. The abundance of molecular background information generated by AURORA holds the promise to support the efficient clinical development of such targeted agents. In particular, for women with triple negative BC relapsing within 2 years of adjuvant systemic therapy, a multi-arm genotype-driven protocol is under construction. The aim is to offer more personalized and more efficient therapies in this poor-prognosis subgroup of patients.

© The Author 2015. Published by Oxford University Press on behalf of the European Society for Medical Oncology. All rights reserved. For permissions, please email: journals.permissions@oup.com.