MEDIA RELEASE
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The odyssey towards metastatic breast cancer survival: The AURORA academic research programme

4 June marks National Cancer Survivors Day (in the US) – a moment to recognise all the milestones cancer survivors have reached and acknowledge the reality of life beyond a cancer diagnosis. This day serves as a reminder that while survivors demonstrate resilience and courage, they also grapple with the uncertainty and fear associated with their journey.

Metastatic breast cancer – the reality of an incurable disease ….
…. and the relentless pursuit of prolonged survival through innovative academic research
Breast cancer is the most diagnosed cancer and the leading cause of cancer-related death in women and men across Europe. While early-stage disease is potentially curable, more than 5% of patients are diagnosed with metastatic breast cancer, which is not curable. Additionally, 20–30% of the patients with early-stage disease will eventually progress to metastatic breast cancer[1].

And while some patients live longer than others with the disease, we still don't understand why.

Despite advances in the understanding of the disease and new treatments, only about 25% of patients diagnosed with metastatic breast cancer live for five years or more, on average[2]. By and large, breast cancer specialists try to treat it as a chronic disease, managing symptoms to prolong life. **Regrettably, recent developments have yet to substantially improve the quality of life for these patients. And much remains to be learned about how metastatic breast cancer evolves over time.** This highlights the critical importance of academic research programmes like AURORA in striving for breakthroughs and enhancing patient outcomes.

Navigating the path of metastatic breast cancer: the AURORA academic research programme

AURORA
Metastatic Breast Cancer - molecular aberrations

The Breast International Group (BIG) is the initiator of the European academic research programme AURORA, also referred to as the "Metastatic breast cancer GPS" study. Its aim is to improve our understanding of metastatic breast cancer by mapping the routes that cancer cells take as they invade different organs, while simultaneously identifying genetic breakdowns that occur throughout their journey. Our aspiration through this study is to better understand the evolution of metastatic breast cancer, with the hope to discover ways to block the disease in the future.

"Understanding why some breast cancers recur and spread while others are cured is of paramount importance to develop treatment strategies that will ultimately increase survival. AURORA aims to address this goal through advanced molecular analysis of paired primary and metastatic tumour samples as well as blood taken over time. We hope that this international study will be a major contribution in the fight against this disease," says Dr Philippe Aftimos, Co-Principal Investigator of the AURORA programme and Clinical Trials Development Leader at the Jules Bordet Institute in Brussels, Belgium.

- Over 1,000 men and women with metastatic breast cancer already included
- From 2023: recruitment of 260 additional patients with difficult-to-treat breast cancer types
- Over 60 hospitals in 11 European countries involved overall
- First results published in *Cancer Discovery*[3] in 2021
- Patients will be followed up for at least 5 years and up to 10 years
- Funding: see further below*

[1]Harbeck N, Penault-Llorca F, Cortes J, et al. Breast cancer. *Nat Rev Dis Primers* 5(1):66. Sep 23, 2019 doi: 10.1038/s41572-019-0111-2
[2]Ross C, Szczepanek K, Lee M, et al. The genomic landscape of metastasis in treatment-naïve breast cancer models. *PLoS Genet* 16(5): e1008743. May 28, 2020. doi: 10.1371/journal.pgen.1008743
[3]Aftimos P, Oliveira M, Irrthum A, et al. Genomic and Transcriptomic Analyses of Breast Cancer Primaries and Matched Metastases in AURORA, the Breast International Group (BIG) Molecular Screening Initiative. *Cancer Discov* (2021) 11 (11): 2796–2811, doi: 10.1158/2159-8290.CD-20-1647

3-4 June 2023: AURORA presentations at ASCO

During the annual **ASCO 2023** conference, organised by the **American Society of Clinical Oncology**, two presentations will take place, highlighting analyses from the AURORA research programme:

- Saturday, June 3, 2023 | 8:15 PM – 9:45 PM GMT+2
  "Characterization of the immune microenvironment in matched primary and metastatic breast cancer lesions from the AURORA study: BIG 14-01"
  https://meetings.asco.org/abstracts-presentations/220016
- Sunday, June 4, 2023 | 6:30 PM – 8:00 PM GMT+2
  "Clinico-molecular characteristics associated with outcomes in breast cancer patients treated with CDK4/6 inhibitors: Results from the AURORA Molecular Screening Initiative" https://meetings.asco.org/abstracts-presentations/220470

AURORA: in practice

The AURORA research programme explores metastatic breast cancer (MBC) from a genetic perspective, examining the complex relationship between the disease and the patient's treatment journey. Researchers aim to decipher the growth of the cancer cells through extensive genetic testing of the primary tumour (located in the breast), on metastases and in blood samples.

The goal of AURORA is to unravel the complexity of MBC and to provide new potential targets for drug development. To do this, we need to better understand MBC. Currently, most of what we know comes from studying primary tumours or biopsies taken after multiple rounds of treatment. However, cancer changes and adapts over time, influenced by the treatments and the body's immune response.

By studying paired samples of the cancer when it is first diagnosed (the primary tumour) and when it first re-appears as incurable disease (metastasis), we can learn more about the disease. This approach helps us identify what is different about the cancer that comes back after supposed curative treatment. In advanced breast cancer, some patients have exceptional responses to treatment. However, many studies have short follow-up time and may not capture these exceptional responses.

Conducting a comprehensive international study like AURORA is challenging but crucial for advancing our understanding of MBC. The Breast Cancer Research Foundation has been an essential partner in making AURORA a reality, supporting both the work of BIG (AURORA EU) and that of the US-based Translational Breast Cancer Research Consortium (AURORA US). We aim for the findings from the AURORA EU and US initiatives to lay the foundation for well-designed and patient-centred clinical trials driven by precision medicine in the future – and ultimately prolonged survival and even cures from this devastating disease.

See also the recently published manuscript on the promises and challenges of a programme like AURORA "International research to address the challenges of metastatic breast cancer: the AURORA programme (BIG 14-01)" (*njp Breast Cancer*[4], 23 May 2023).

*** Funding**

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For the AURORA study description, see: https://bigagainstbreastcancer.org/clinical-trials/aurora/#_ftn1

About the Breast International Group (BIG)

The Breast International Group (BIG) is an international not-for-profit organisation for academic breast cancer research groups from around the world, based in Brussels, Belgium.

Global collaboration is crucial to make significant advances in breast cancer research, reduce unnecessary duplication of effort, share data, contribute to the faster development of better treatments, and increase the likelihood of cures for patients. Therefore, BIG facilitates breast cancer research at international level, by stimulating cooperation between its members and other academic networks, and collaborating with, but working independently from, the pharmaceutical industry.

In 1999, BIG was founded by Dr Martine Piccart and the late Dr Aron Goldhirsch with the aim to address fragmentation in European breast cancer research. Research groups from other parts of the world rapidly expressed interest in joining BIG and, two decades later, BIG represents a network of about 60 like-minded research groups from around the world. These entities are tied to several thousand specialised hospitals, research centres and world-class breast cancer experts across approximately 70 countries on 6 continents. More than 30 clinical trials are run or are under development under the BIG umbrella at any one time. BIG also works closely with the US National Cancer Institute (NCI) and the National Clinical Trials Network (NCTN), so that together they act as a strong integrating force in the breast cancer research arena.

BIG's research is supported in part by its philanthropy unit, known as BIG against breast cancer. This denomination is used to interact with the general public and donors, and to raise funds for BIG's purely academic breast cancer trials and research programmes. For more information, visit www.BIGagainstbreastcancer.org

Press contacts – not for publication:

For further information on this press release, or for an interview request, please contact: Communications@BIGagainstbc.org

[4]Caballero C, Irrthum A, Goulioti T, et al. International research to address the challenges of metastatic breast cancer: the AURORA Program (BIG 14-01). *npj Breast Cancer* volume 9, 42 (2023), doi: 10.1038/s41523-023-00548-9