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Human, synthetic, immuno-genomically-designed antibodies (sigAbs)TM to assess patients diagnosed with HER2+ breast cancer for therapeutic vaccines

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The main requirement for high efficacy of therapeutic vaccines against cancer is the selection of the unique targets for the immune system. These targets have to have narrow immunogenic spectrum to minimize iatrogenic side effects. Moreover, the raised antibodies have to have very narrowly focused specificity. TO ensure high efficacy, these antibodies have to possess the high sensitivity.

In this realm, we created the synthetic immuno-genomic data bank as the foundations for designing and synthesizing very specific antibodies with all their domains crafted on-demand to trigger specific routes of the immune response.

Herceptin, Perjeta, and Kadcylla are very successful immunotherapeutics for women suffering from breast cancers over-expressing HER2 receptors. As the test of our novel biopharmaceutical technology, we synthesized the immuno-genomically designed antibodies (sigAbs) against HER2 as companion diagnostics for these immunotherapies and future anti-breast-cancer vaccines. By flow cytometry, western blotting, x-ray fluorescence spectroscopy, and on formalin fixed, paraffin embedded, and sectioned breast cancer samples, we demonstrated much higher specificity and sensitivity of sigAbs over mAbs.

Biography

Marek Malecki MD PhD is President of the Phoenix Foundation, San Francisco, CA, USA, Principal Investigator at the National Institutes of Health, Bethesda, MD, USA, and Visiting Professor at the University of Wisconsin. He earned the MD degree at the Medical Academy, Poznan followed by Residency/Fellowships in Molecular Medicine in Rigshospitalet, Copenhagen, Cancer Center, Vienna, and Cancer Center, Warsaw. He earned the PhD degree at the Polish Academy of Sciences, Warsaw followed by the postdoctoral fellowships in molecular biology at the Austrian Academy of Sciences, Salzburg, ETH, Zurich, Utrecht University, Utrecht, Cancer Center, Amsterdam, Biozentrum, Basel. Over the last 20 years, he held faculty positions in Oncology and Molecular Medicine at the leading teaching hospitals and medical universities in the USA including the UW, UCSD, and SDSU. There, he acquired solid experience in streamlining advances in genomics and proteomics into novel strategies of therapy, as well as in teaching medical students, residents, and fellows. During his career, he served as the president and CEO of the Phoenix Biomolecular and Foundation for Molecular Medicine. Since 1988 his research, as the Principal Investigator, was continuously funded by the grants from the National Science Foundation and the National Institutes of Health. He is the first or senior author on the peer-reviewed publications in the high impact journals, which are indexed on the PubMed. He is the inventor of the gene therapies, therapeutic vaccines, and regeneration of tissues, which are published at the USPTO and WIPO. He was elected to serve as the Editor in Chief in peer-reviewed, open-access journals in Science, Technology, and Medicine, as well as Editorial Board Member and Reviewer at many others.

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