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**ADAPT biotargeting system<sup>TM</sup>: A next generation poly-ligand profiling approach for precision medicine****Mark R Miglarese**

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Despite significant advances of precision medicine in oncology, the performance of predictive biomarkers and companion diagnostics remain profoundly suboptimal. Clinical benefit from specific cancer therapies is determined by subtle differences in tumor system biology that are inherently difficult to access. Accordingly, highly multiplexed methods are required to evaluate these perturbations. We developed the ADAPT Biotargeting System<sup>TM</sup> which employs aptamer-based polyligand profiling to distinguish a wide range of complex yet subtle phenotypes including response to molecularly targeted therapy. We showed that the ADAPT Biotargeting System<sup>TM</sup> can distinguish tumor tissues from breast cancer patients who, either did or did not derive benefit from HER2-targeted trastuzumab-based regimens. Test performance was assessed by calculating AUC values from ROC curves and by generating Kaplan-Meier plots using Time To Next Therapy (TTNT) as a surrogate measure of clinical benefit. ADAPT<sup>TM</sup> test-positive patients showed improved clinical outcomes from trastuzumab-based treatment (median TTNT of 429 days versus 129 days for test-negative patients [n=61, HR=0.384, p=0.001]). Interestingly, the ADAPT test also identified patients who received significant clinical benefit from trastuzumab-based therapy despite having HER2-/low scores by IHC (median TTNT of 421 days versus 199 days [n=23, HR=0.119, p=0.001] for chemotherapy alone). Thus, the ADAPT Biotargeting System<sup>TM</sup> has the potential to identify the patients who would benefit from trastuzumab-containing regimens despite standard HER2 testing suggesting otherwise. We are currently building a number of ADAPT assays to improve upon suboptimal predictive biomarkers currently used for a wide range of cancer therapies.

**Biography**

Mark R Miglarese joined Caris Life Sciences as Vice President, Research & Development in August 2015. Prior to joining Caris, he founded OncoNex Consulting LLC and served as an Advisor and Interim Chief Scientific Officer for Cielo Therapeutics. Before that, he held various positions in the BioPharma Sector including Chief Scientific Officer at GeneCentric Diagnostics, Vice President of Oncology Translational and Clinical Science at OSI/Astellas, Assistant Director of Translational Research at Array BioPharma and Section Head in the Department of Cancer Research at Bayer HealthCare Pharmaceuticals. He has received his BS in Biology from Virginia Tech and earned his PhD from the Department of Microbiology and Immunology at the University of Virginia. He continued his Post-doctoral training at Pfizer Central Research and in the Department of Dermatology at Yale University School of Medicine.

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