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Affimers for biomarker detection and discovery in cancer

Danah A Al-Qallaf
University of Leeds, UK

Early detection of cancer is essential to reduce mobility and mortality. This project focuses on developing the Affimer technology as a tool that can be used to detect biomarkers in clinical samples, as well as, to develop new screening strategies to isolate Affimers capable of being used immunohistochemistry (IHC)-like applications. In order to achieve our goals, an Affimer phage display library was screened against recombinant VEGFR2 and HER2, as well as against paraformaldehyde fixed-cancer cells. In order to test the specificity and sensitivity, two different labeling systems were used; biotin and creating an Affimer-alkaline phosphatase fusion protein. Our current data showed a specific and sensitive detection of VEGFR-2 and HER2 in IHC applications when compared to the antibodies. In addition, performing phage display against cell lines identified 8 unique breast cancer cell line-specific Affimers. Further characterization of other HER family proteins in addition to the identified cancer-specific Affimers will be performed. Finally, different strategies to enhance the sensitivity of the reagents in IHC will be developed.

Biography

Danah A Al-Qallaf has worked as a Laboratory Technologist from 2005 to 2014 in Kuwait Cancer Centre, particularly in the stem cell transplantation laboratory and during that time she completed her MSc from Kuwait University School of Medicine (Molecular pathology) and currently she is doing her PhD studies in University of Leeds School of Molecular and Cellular Biology. She has published two papers in reputed journals related to stem cell transplantation studies.

bsdaaq@leeds.ac.uk

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