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Immunomics using protein-and peptide microarrays for cancer biomarker development

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An estimated 2.7 million new cancer cases and 7.6 million cancer related deaths were reported worldwide in 2008 and incidences are increasing. It is well accepted that early cancer diagnosis can improve survival, thus there is a great need and anticipation to identify novel biomarkers for cancer diagnosis at the earliest possible stage, which can ideally be integrated in minimal-invasive diagnostic assays. Cancer onset and progression produces mutated or aberrantly expressed proteins generally also termed as tumor associated antigens (TAAs) which are able to act as antigens and evoke an immune response which results in the production of autoantibodies. These autoantibodies can be detected months or years before the clinical diagnosis of cancer and can therefore be used as biomarkers for the early diagnosis of cancer. We have setup immunomics discovery technologies using high density protein- and peptide microarrays for elucidation of novel biomarkers. By microarray discovery we have defined cancer-specific classifiers with high diagnostic performance, obtaining AUCs>0.9 for the big 4 cancer entities. Autoantibody based strategies outperform the current clinical diagnostic methods and would be of high value for improving cancer diagnostics and patient management. To transfer assays onto clinical applicable formats our current developments of different technological variant settings using medium scaled multiplexed assays in microarray and bead array formats will be presented.

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Biosimilars in rheumatology practice: Where we stand?

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Biopharmaceuticals are biological medical products derived from cell culture or fermentation to produce therapeutic proteins that target pathogenic protein molecules by either neutralization or inhibition of their biologic hazards. Biosimilars on the other hand represent a form of biopharmaceuticals intended to be clinically equivalent end product yet unidentical to another existing biopharmaceutical. Reasons behind their being unidentical to an existing biologic are rather complex, however, many of such products are being increasingly investigated in the field of autoimmune diseases. The use of biosimilars has been linked to a 20-25% cut down in therapeutic costs. With the increasing need for such product clinical development programs are being progressively updated to provide sufficient evidence for equivalent efficacy and comparability of safety and immunogenicity between candidate biosimilar and the reference biologic. Considering the latest therapeutic advent with the establishment of the treat to target strategy, the use of biosimilars in rheumatology practice seems tempting and deserves potential consideration with intense efforts.

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