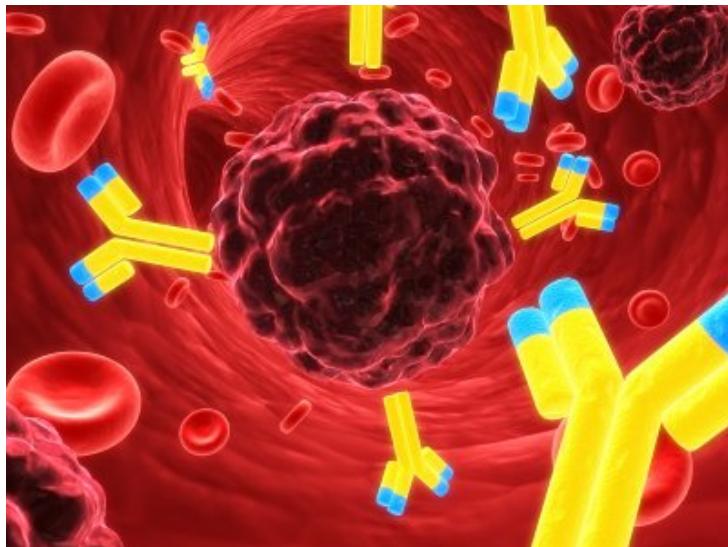


Novel monoclonal antibodies to combat cancer

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Singapore: The Australian Institute for Bioengineering and Nanotechnology (AIBN) entered into research collaboration with Sydney-based Biosceptre International in May 2012 to develop a process for the production of monoclonal antibodies to treat cancer. According to the agreement, AIBN's National Biologics Facility will characterize candidate therapeutic monoclonal antibodies that bind to Biosceptre's novel cancer target known as nf-P2X7.

Dr David Y Chin, operations manager, National Biologics Facility, AIBN, informed BioSpectrum that UniQuest, The University of Queensland's (UQ) main commercialization company, has facilitated a strategic research collaboration and antibody production agreement between Australian Institute for Bioengineering and Nanotechnology (AIBN) researchers and Biosceptre International to develop a bioprocess for producing certain monoclonal antibodies for the treatment of cancer.

The R&D will include antibody development, cell line development, bioprocess development and recombinant protein production in pre-commercial quantities ahead of preclinical trials. The collaboration was made possible with support from Medigen, a privately held investment company which is linked to the Crea group of companies and utilises the services of Crea Ventures. The collaboration also included antibody affinity maturation using phage display technology for the isolation of second generation antibodies with higher affinity against the same target.

Talking about the importance of collaboration between research and industry, Dr Chin elaborated that "Australian science is traditionally well developed in basic research areas, but lacking in translational research, meaning moving projects from research to clinic. Industry involvement means access to more external and private funding other than relying purely on government research grants. This will also provide opportunities to collaborate and access cutting edge technology and experts in the field through industrial collaborations." Dr Chin also highlighted that the major challenges currently facing antibody production is the final quality of the product.

According to Dr Chin, the trend in antibody research is moving towards "beyond antibody" by using scaffold structure to mimic

antibody functions; using smaller antibody fragment such as Fab, scFv and dAb-Fc to replace whole IgG molecule that are more than 150kDa in size, as well as bi-specific antibody using antibody fragments (ScFv or Fab formats). Other focus in antibody research is combining with nanoparticle technology to deliver antibody to active site and increase half-life in circulation; another areas is by conjugating toxin or drug to antibody and deliver to target site for better efficacy.