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Cancerous immunoglobulins and potential applications in cancer immunodiagnostics and immunotherapy

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Parallel to the conventional immunology, immunoglobulins can also be produced by many cancer cells of epithelial origins for unidentified functional roles. RP215 was the first monoclonal antibodies generated in 1987 and shown to react with a carbohydrate-associated epitope located mainly in the variable regions of heavy chains of immunoglobulins expressed by cancer cells, but in those (designated, in general as CA215) of B cell origin. Through years of biological and immunological studies, it has become apparent that dual differential roles are played by cancerous immunoglobulins, through their interactions with a number of human serum protein components which have been characterized previously with either pro- or anti- cancer properties. Therefore, cancerous immunoglobulins are essential for the growth and protection of cancer cells under our body environment. RP215 was found to be a unique probe for CA215 in the immunoassays to monitor serum levels of shed cancerous immunoglobulins among cancer patients for immunodiagnostic applications. In addition, upon binding with surface expressed immunoglobulins, RP215 was shown to induce apoptosis and complement-dependent cytotoxicity to many cancer cells. Therefore, humanized forms of RP215 can be used to target cancer cells of different tissue origins and are being developed into antibody-based anti-cancer drugs for cancer immunotherapy.

Biography

Gregory Lee was professor at University of British Columbia in Vancouver, Canada until 2012. He received his PhD in physical biochemistry from California Institute of Technology Pasadena, CA in 1972. His major research interest is in the field of biotechnology. He has generated numerous monoclonal antibodies for immunodiagnostic and therapeutic applications, including the early pregnancy detection, ovulation, myocardial infarction and cancer. During the last decade, he has been focused on research and development of the monoclonal antibody-based anti-cancer drugs (noticeably RP215 and GHR106) for immunotherapy of human cancer. He has been serving as editors of several international journals related to cancer research since 2012.

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