



ANTIGENICS' QS-21 IS AN INVESTIGATIONAL ADJUVANT DESIGNED TO HELP INCREASE THE IMMUNOGENICITY OF VACCINES. IT IS THE LEADING MEMBER OF THE STIMULON® FAMILY OF ADJUVANTS, AND IN CLINICAL TRIALS, HAS BEEN SHOWN TO IMPROVE IMMUNE RESPONSE TO VACCINES AND OTHER IMMUNOTHERAPEUTICS. AS ONE OF THE WORLD'S MOST WIDELY TESTED ADJUVANTS, QS-21 HAS BEEN STUDIED IN APPROXIMATELY 3,500 PEOPLE IN MORE THAN 50 PHASE 1, 2 AND 3 CLINICAL TRIALS ACROSS A WIDE RANGE OF INDICATIONS, INCLUDING CANCERS AND INFECTIOUS DISEASES. QS-21 IS DESIGNED TO STIMULATE BOTH ARMS OF THE IMMUNE SYSTEM WHEN COMBINED WITH VARIOUS VACCINE ANTIGENS.

THROUGH CORPORATE PARTNERING WITH LEADING PHARMACEUTICAL COMPANIES, ANTIGENICS' QS-21 IS AN INTEGRAL ELEMENT IN SEVERAL CLINICAL TRIALS OF EXPERIMENTAL VACCINES AND TREATMENTS FOR CONDITIONS SUCH AS MALARIA, CANCER, HIV AND OTHER INFECTIOUS DISEASES.

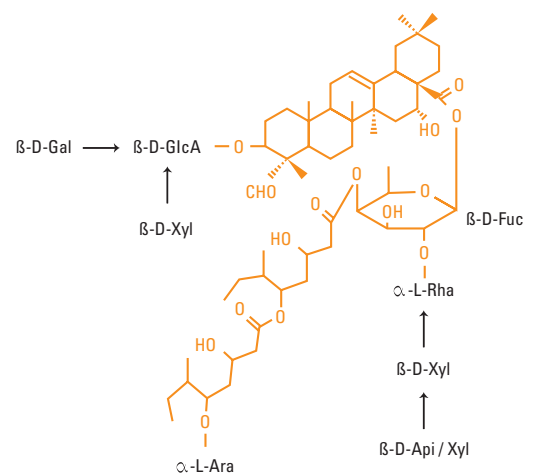
BOOSTING IMMUNE RESPONSE QS-21 is an adjuvant, which is a substance added to vaccines and other immunotherapies that is designed to enhance the body's immune response to the antigen contained within the treatment. In clinical studies, QS-21 appears to increase total vaccine-specific antibody response and protective T-cell responses. It also demonstrates potency with relatively small quantities of antigen, as well as synergy with many formulations and other adjuvants. Because of the ability of QS-21 to improve the body's immune response to a given vaccine, vaccine antigen can be 'spared,' considerably decreasing the amount of antigen required for a given dose and making production more economical.

ENHANCING VACCINE FORMULATIONS QS-21 exhibits potency at microgram quantities and integrates easily with most formulations. Unlike most adjuvants, which improve immune response to vaccine antigens in only a limited manner, QS-21 has demonstrated an ability to influence several immunologically important features. These include: increasing the ability of weak antigens to activate the immune system for better immune response and lower antigen requirements, which in turn lowers vaccine production costs; enhancing the speed and duration of immune response, affording earlier, better and longer immune protection; and improving immune responses in the elderly for greater overall response rates, with potential for broader product labeling claims.

CORPORATE PARTNERING Some of the world's largest pharmaceutical companies have licensed the QS-21 adjuvant from Antigenics for use in many immunotherapy development programs. The company has five corporate partners that have licensed the QS-21 adjuvant for a variety of human diseases: GlaxoSmithKline, Elan Pharmaceuticals/Wyeth, Progenics Pharmaceuticals, Pharmexa and Advanced Bioscience Laboratories. In return for rights to use the QS-21 adjuvant for specific diseases, the corporate partners have agreed to pay

Antigenics license fees, milestone payments, and royalties on product sales. Antigenics has retained worldwide manufacturing rights for QS-21.

MANUFACTURING OF QS-21 QS-21 is manufactured using dedicated, state-of-the-art facilities and in accordance with Current Good Manufacturing Process guidelines. Batch size capabilities are 200,000 doses per batch, and key elements of the production process have been scaled to 2 million doses per batch in anticipation of commercial-scale implementation. Appropriate quality control and quality assurance procedures have been developed. QS-21 has been classified by the US Food and Drug Administration as a constituent material used in product preparation and, as such, an establishment license application is not required for the manufacture of QS-21.



MOLECULAR STRUCTURE OF QS-21