

Safeguarding public health

KM BIOLOGICS' RESEARCH ROOTS help it successfully innovate in the field of vaccine development.

Public health has come a long way over the past 70 years, and so has KM Biologics and its predecessor, Kaketsuken. From their involvement in the smallpox eradication efforts in the 1940s and 1950s, to their integral contributions to vaccines for influenza, hepatitis A and B, rabies, Japanese encephalitis, diphtheria, pertussis or 'whooping cough', and tetanus, KM Biologics has played a major role in supporting the health of the Japanese population.

Executive officer of R&D, Kazuhiko Kimachi, has dedicated more than 30 years at KM Biologics to vaccine research and development, and has witnessed the company's many accomplishments in the fields of vaccine and blood plasma product development. "Within the company there is a strong sense of commitment to public health and freedom to innovate and enable practical developments in medicine, and I really enjoy it," he comments. The company's innovative spirit led to the creation of the recombinant hepatitis B vaccine and a component acellular pertussis vaccine — firsts in Japan.

Thanks to some historic contributions to public health, and a demonstrated capability to effectively mobilize resources and technology when facing national crises, the institution has been entrusted with supplying vaccines to 57 million people — almost half the Japanese population — in the event of an influenza pandemic. KM Biologic's strong commitment to public health has ensured vaccine safety and immunization reliability, significantly reducing the infectious disease burden in Japan.

"FOLLOWING WORLD WAR II, WE FOCUSED ON IMPROVING PUBLIC HEALTH."

Fighting mosquito-borne disease

One of KM Biologics' most widely used products is ENCEVAC — an inactivated Japanese encephalitis vaccine — which is administered to toddlers in Japan and South Korea. Although this vaccine in itself is of great importance to public health, KM Biologics' expertise and the processes which support its



development and production are also extremely significant in the context of future health-preparedness.

KM Biologics has also been developing a new live attenuated tetravalent vaccine that is expected to be able to induce solid and comprehensive immune responses against four dengue virus strains — a particularly challenging public health issue.

Veterinary vaccines

KM Biologics develops vaccines not just for humans, but for livestock too. Working across species in such a manner might seem an ambitious approach to healthcare, but this synergy between fields

actually underpins some of the company's unique capabilities. "The basic technologies behind vaccine development remain the same," says Kimachi. Veterinary vaccine development is much faster than human vaccine development. New techniques and technologies can therefore be effectively 'tried' in a clinical veterinary setting, before streamlining them for use in human vaccine development.

Blood plasma products

KM Biologics' vaccine production technologies enabled the company to expand into blood plasma products in the 1960s. Since then, KM Biologics have produced a wide range of blood plasma products, such as

intravenous immunoglobulin, albumin, coagulation factors for haemophilia patients, and fibrin sealants — a type of tissue adhesive. KM Biologics' technology ensures the safety of products purified from human plasma. They have also developed unique products in this area, such as combined activated factor VII and factor X for haemophilia inhibitor patients and an activated protein C for patients with protein C deficiencies. Their fibrin sealant is being applied to new fields such as regenerative medicine and the company is also further improving their recombinant DNA technology to prepare fibrinogen and thrombin without relying on human plasma.

A learning tradition

Of course, not all of KM Biologics' developments have been successful — but, in sticking close to the company's research roots — failure is treated as an opportunity to learn and ultimately, to succeed. Central to this philosophy is the diversity of KM Biologics' projects and capabilities — a lesson learned from one project can be applied to the entirety of the company.

"Our predecessor, Kaketsuken, began as a university venture," explains Kimachi. "Following World War II, we focused on improving public health. Because of this history, Kaketsuken had maintained



a focus on science-based experimentation and research, with strong links to academia." KM Biologics' culture therefore incorporates the core innovation values of a research institution with the practical translation capacity of a business. The company maintains important connections across the value chain from the World Health Organization and government regulatory bodies, to manufacturers, clinicians, and patients.

Moving forward as a member of the Meiji Group

In 2018, KM Biologics entered a new era as a member of the Meiji Group, a corporation specializing in food, nutrition

and pharmaceuticals. The innovative spirit and technologies of KM Biologics combined with the Meiji Group's capabilities will facilitate a new direction in biological products such as regenerative medicines and gene therapy. With the Meiji Group's strong dedication to human health and their international links, KM Biologics will expand their field of interest and role as a safeguard for public health from the domestic to the global level. ■

