intravacc

innovating vaccines

Needle Free Jet Injection

Optimizing the administration of vaccines

Intravacc and the European Pharma Group

Intravacc

Intravacc, the Institute for Translational Vaccinology, promotes public health by developing vaccines from the laboratory to clinical study in man. Intravacc operates under the Ministry of Public Health, Welfare and Sport, the Netherlands. It has an extensive infrastructure for translational vaccine R&D and has proficient knowledge in the field of vaccine development and production. We reduce the development risks and costs of new vaccines by bridging the translational gap between laboratory bench and market.

European Pharma Group

The European Pharma Group BV is an ISO 13485 certified Medical Device manufacturer involved in the design & development, manufacturing, sales and distribution of jet- administration devices for liquid medication. EPG BV is the manufacturer of the InsuJet™, a Multi-Use Nozzle Jet Injector system for insulin.

Vaccine Delivery

Conventional vaccination by needle and syringe has typical disadvantages. Skilled personnel is needed for the appropriate use of needle and syringe. Furthermore the use of needles often induces fear and stress in children, thereby negatively affecting the efficacy of vaccination campaigns. Also, the reuse of needles has shown to cause spreading of diseases. The use of new vaccine delivery technology should overcome the drawbacks of standard vaccination. It is foreseen that new delivery devices may enable a pain free, easy to use, fast and cost effective vaccination strategy that is safe for vaccinees and medical staff.

Needle free jet injection

Most vaccines are delivered by the intramuscular (im) or subcutaneous (sc) route. Intravacc tests and further develops various devices and delivery systems (e.g. Jet injectors) to further promote and accommodate needle free delivery. Recently, Intravacc and the European Pharma Group joined forces to start using needle free jet injection technology for the delivery of vaccines.

Needle free jet injection using the InsuJet™ technology

The InsuJet™ is a manually operated device, containing a powerful spring that is optimized for subcutaneous jet-administration. The administration is achieved by pressurizing the liquid through a small orifice in the Nozzle, creating a high speed jet that penetrates the skin and underlying tissue. Administration with the InsuJet™ is virtually painless. Pre-clinical studies show that the delivery of vaccines by the InsuJet™ technology is non-inferior to conventional vaccination (data on request).

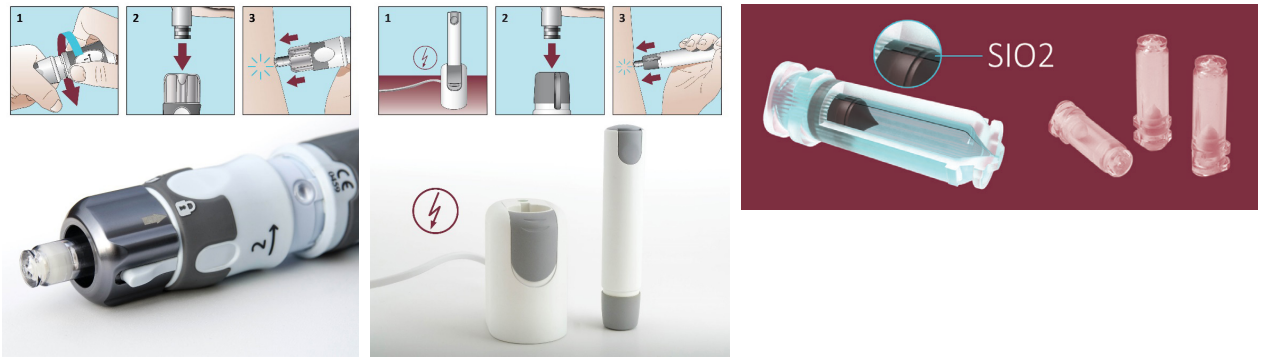
The InsuJet™ is a registered product, suitable for subcutaneous delivery of compounds. The InsuJet™ technology is well suited for further application of vaccines in humans.

Key advantages of the InsuJet™ technology are:

- Product with market access in Europe (CE marked) and Asia Pacific.
- No risk of needle sick injuries or the reuse of needles
- Re-usable injector, custom designed low volume (disposable) nozzles
- Fast, safe and virtually pain free delivery of vaccines to the individual
- Dose sparing of vaccines (no needles equals no residual volume)
- Reliable, proven technology

Jet injection technology can be of great interest to a number of areas including:

- Prophylactic vaccination
- Therapeutic vaccination (e.g in oncology)
- Immunotherapy (specifically SCIT)



The InsuJet™ jet injection technology can be custom designed as to meet the requisites of vaccination in specific target groups. The left panel depicts a manually operated needle free injection device that could be suited for vaccination campaigns in development countries. The middle panel depicts an electronic needle free injection system, which could be suited for vaccination campaigns in the industrialized world and specifically pandemic outbreaks. The right panel depicts the nozzles, which can be pre-filled with the vaccine.

For both systems, vaccines are administered in three steps. First, the device is charged by manually winding, or automatically compressing the internal spring. In the second step, the (pre-filled) nozzle containing the vaccine is connected to the device. The third step comprises the eventual administration of the vaccine.

Business Opportunities

The needle free jet injection technology of the InsuJet™ is now ready for further development and application in the area of vaccinology. The technology can easily be adapted as to meet the requisites of each customer and product. If so desired, Intravacc can be the ideal partner to develop a vaccine formulation that is well equipped for usage in the InsuJet™. Furthermore, Intravacc has the necessary GMP-compliant facilities to produce clinical lot material for phase I/II clinical trials. If you are interested in collaboration or require more information, please contact us so we can discuss your needs.

Contact

Dr. Ivo Ploemen, Intravacc
Program Manager Vaccine Delivery
T: +31 (0) 30 7920 496
ivo.ploemen@intravacc.nl

Antonie van Leeuwenhoeklaan 9 T: +31 (0) 30 7920 300
3721 MA BILTHOVEN info@intravacc.nl
The Netherlands www.intravacc.nl

Erik Grimmelikhuysen, European Pharma Group BV
CEO European Pharma Group BV
T: +31 (0) 20 3160 149
e.grimmelikhuysen@eupharmagroup.com

Beechavenue 127 T: +31 (0) 20 3160 140
1119 RB SCHIPHOL RIJK info@eupharmagroup.com
The Netherlands www.eupharmagroup.com