

"Alliance" - the newsletter of the Canadian Immunodeficiencies Patient Organization

Vivaglobin® - a new product frees patients from hospital treatment



Vivaglobin®, a new subcutaneous gammaglobulin product manufactured by CSL Behring is the first product of its kind (no vein access required) to be licensed in Canada. Vivaglobin® was licensed for use in primary immune deficiency in Canada in 2006, and has been available in Quebec since early 2007. The launch for the rest of Canada started earlier this year, and because patients can infuse in a home setting, it is growing quickly in popularity.

"Vivaglobin® allows a degree of freedom and flexibility that until now has never been available to Canadian patients with primary immune deficiency," says Marie Christine Roberge, National Immune Globulin Manager, CSL Behring Canada. "With this mode of administration, physicians and their patients now have a choice to administer their Vivaglobin® therapy in the comfort of their home".

According to Tina Morgan, Executive Director of the Canadian Immunodeficiencies Patient Organization and a patient herself, home administration of Vivaglobin® not only allows patients to schedule their treatments at a time that is most convenient for them, but it also allows them to decide where as well. "Vivaglobin® means the days of being tethered to a hospital or clinic to get treatment are over, and patients finally have the choice to infuse when and where it works for them," says Morgan.

For many patients and their families hospital treatment can also bring with it substantial barriers, according to Morgan. "The average patient must infuse Monday to Friday, every 3 or 4 weeks, which is tough if you work a 9 to 5 job, and the patients or families (if patient is a child) often incur substantial costs for travel to hospital and for parking," says Morgan.

Travel is another issue for some patients like myself," says Morgan "it means you either miss a treatment, or not travel to any out of country destination for longer than 3 or 4 weeks — unless of course you have thousands of dollars to pay for your treatment somewhere else."

However the biggest drawback to hospital infusions according to Morgan has always been the location. "Infection prone patients arrive at the hospital for their treatment with their immune levels at the lowest of the month, and are exposed to any number of viruses and bacteria in the hospital. This has never been an ideal combination," says Morgan, "and unfortunately patients often bring home

more than they bargained for."

There are two methods for administering your infusions. The pump method requires a pump along with specialised tubing and allows you to infuse your dose once a week (or more if necessary). Another method which was not used in the trials¹ to get license for Vivaglobin® in Canada, but which is quickly being adopted as the standard in most provinces is called "PUSH". With this method a patient just needs a small syringe and a butterfly needle. With the "PUSH" method you often require more frequent small injections during the week, which can be tailored according to your dose and your schedule.

Because Vivaglobin is injected under the skin, it is absorbed slowly. With Vivaglobin, in most cases the monthly dose is split into smaller doses for more frequent infusions. The recommended weekly dose of Vivaglobin® is 100 to 200 mg/kg body weight and doses may be adjusted over time to achieve the desired clinical response and serum IgG levels²."

With traditional IVIG treatment, the lowest levels of immunoglobulin typically occur just before dosing, as the previous dose 'wears off' (so-called 'trough level'). With Vivaglobin, the trough levels tend to be higher than with intravenous immunoglobulins, and remain at a stable level all the time.

Therefore, doctors and patients may prefer Vivaglobin in cases where patients complain of the "wear-off" effect causing fatigue - typically in the week prior to an IVIG dose," according to Roberge.



"Vivaglobin may also be an option if intravenous products are poorly tolerated or if patients have trouble with accessing veins for IVs," says Roberge.

Minimal training is required, and CSL Behring offers tools, resources and training for health care professionals who wish to train their PID patients to use Vivaglobin® at home.

Manufactured by CSL Behring, Vivaglobin® is supplied as a sterile 16% (160 mg/mL) solution containing at least 96% immunoglobulin G (IgG). The distribution of IgG subclasses in Vivaglobin® is similar to that of normal human plasma. It is currently available in 10 ml vials (3 mL vials are expected to be available later in 2009). Vivaglobin® must be stored refrigerated and contains no preservatives².

As with all immune globulin products, Vivaglobin® should not be used in individuals with a history of anaphylactic or severe systemic response to immune globulin preparations (allergic reactions or very poor tolerance), in persons with known antibody against IgA and in patients who are hypersensitive to this drug or to any ingredient in the formulation or component of the container². Because of the potential



James Kreppner, Tina Morgan 2005

James Kreppner 1962 – 2009 the passing of an intrepid soul – by Tina Morgan

CIPO was saddened to hear of the passing of James Kreppner on May 14, 2009. James was born in Toronto on March 6, 1962 with the inherited blood disorder Hemophilia A, and because of this disorder needed to be infused with a blood product called Factor 8, to control bleeding whenever he injured himself, (even when it was a minor scrape or bump). This was no great obstacle to James who considered it a minor inconvenience

However, James' life was changed forever in the 1980s when he contracted both Hepatitis C and HIV from tainted blood. Eighty (80) percent of Hemophilia patients in Canada were infected with Hepatitis C, HIV or both during that time. Other patients that used blood products (including immune deficient patients) also became infected, but no group was as widely affected as the Hemophilia population.

James was already in law school when he found out that he had contracted both HIV and Hepatitis C in the mid 80s, but he went on to finish law school and pass the bar, which given his situation, would have been no easy feat.

He, of course, had every reason to be angry and bitter and to feel he had been cheated of a normal life. However, if he ever felt that way, he never let on. James decided instead, to use his legal training to ensure what happened to him never happened to Canadian users of the blood system again.

He also spent a great deal of his time advocating for other patients affected by tainted blood. He fought with both provincial and federal government agencies for the compensation that was eventually received by those affected. He testified at inquiries, and sat on a number of consumer boards and committees; his most recent with the board of the Canadian Blood Services.

I had the honour of meeting James for the first time in 1996 at a blood safety (continues...James..)

New inhaler will target specific airways

Two North Carolina State University engineers have developed a new inhaler system that could improve treatments for a host of diseases by targeting drugs onto diseased tissue without affecting healthy areas of the throat and lungs.

The prototype device, developed by Dr. Clement Kleinstreuer, a professor in the Department of Mechanical and Aerospace Engineering, and Dr. Stefan Seelecke, an associate professor in the same department, implements a technology that for the first time tightly controls where inhaled drugs end up in the respiratory system.

The smart inhaler works through the use of a nozzle that can be adjusted to change where the drug-aerosol stream goes in the respiratory system. A pressure actuator and valve inside the inhaler modifies a patient's breathing pattern so that the released medicine goes where it is needed, and nowhere else.

Kleinstreuer came up with the idea for the system while conducting research for U.S. Environmental Protection Agency officials who asked him to predict how inhaled toxic particles would deposit in the lungs. He took the research a step further by examining therapeutic materials instead of toxic ones and developed simulations that could deter-

mine the exact drug-aerosol release position, particle characteristics and inhalation flow rate to deliver the medicine to a specific site or region in the lungs.

Kleinstreuer and Seelecke used that research to develop the inhaler and conducted laboratory tests on the device with the help of Dr. William Roberts, professor of mechanical and aerospace engineering at NC State. Using a model of twisting glass tubes to mimic the airways from the mouth to the upper branches of the lung and a laser to track the path of the particles, Roberts confirmed the findings of Kleinstreuer's computer simulations by showing that the air particle stream from the nozzle could travel through the bent and branching airways in the lungs to a specific point.

Earlier inhalers could at best distinguish whether diseased tissue was in the upper or lower region of the lung. With those devices, about 80 percent of the drug was deposited in healthy areas that did not require treatment, wasting medicine and potentially causing harmful side effects for the patient.

The researchers, with the help of pulmonary specialists at the School of Medicine at the University of North Carolina at Chapel Hill, hope to begin testing the inhaler with patients in about two years.

James Kreppner continued

meeting in Ottawa, and we quickly became fast friends. He was busy with blood advocacy work and I had just started CIPO and was trying to get up to speed on blood issues quickly. This meant, more often than not, that we were at the same meetings or events. James was always ready to explain things I didn't understand, or to discuss the events of the day. As time went on, we had so much in common that it wasn't unusual to feel like we were finishing each other's sentences. James was a rarity in life. Although you could see he was an optimist and idealist by

nature; what life had thrown at him forced him to be a realist when it came to human nature. He knew the only way to safeguard our blood system for future generations was to ensure that those that use blood and blood products always have input into the decisions that shape it. James gave his life to fix what was broken and to shape the way our current blood system in Canada operates. Now it is up to us to ensure we never falter in keeping it that way!

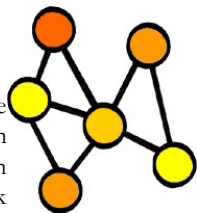
James can never be replaced, but we can honour his life's work by ensuring we never forget, and we continue to be vigilant over the Canadian blood system!

New non-viral gene technology approach developed

Leuven, Belgium

VIB researchers connected to the Katholieke Universiteit Leuven (Belgium) in collaboration with colleagues at the Max Delbrück Center in Berlin (Germany) have developed a new non-viral gene technology approach. This approach may overcome side effects associated with the current viral vectors, such as inflammation or the development of cancer. The result offers new hope for optimizing gene therapy as a possible cure for specific diseases, such as genetic disorders and cancer.

Gene therapy is the introduction of genetic material into a patient's cells resulting in a cure or a therapeutic effect. In recent years, it has been shown that gene therapy is a promising technology to treat or even cure several fatal diseases for which there is no attractive alternative therapy. Gene therapy can be used for hereditary diseases, but also for other diseases that affect heart, brain and even



for cancer. Indeed, recent results suggest that gene therapy can be beneficial for patients suffering from aggressive brain cancer that would otherwise be lethal.

Despite the overall progress, there is still a need to develop improved and safer approaches to deliver genes into cells. The success of gene therapy ultimately depends on these gene delivery vehicles or vectors. Most vectors have been derived from viruses that can be tailor-made to deliver therapeutic genes into the patients' cells. However, some of these viral vectors can induce side-effects, including cancer and inflammation.

Leuven in collaboration with Zsuzsanna Iszvak and Zoltan Ivics and colleagues at the Max Delbrück Center in Berlin (Germany) have now developed a new non-viral approach that overcomes some of the limitations associated with viral vectors.

Using the principles of evolution and natural selection, that were initially conceived by Charles Darwin, they have

Vivaglobin continued

risk, all immunoglobulins are contraindicated in patients with anti-IgA antibodies even though some authors have suggested that subcutaneous immunoglobulins^{3,4,5} may be the preferred route of administration for these patients even if they have had previous severe reactions to IVIG.

There are medical considerations to look at before your physician decides if you are a candidate for Vivaglobin. Contact your treatment team for information on the Vivaglobin training and resources available to you.

References

1. Nicolay U, Kiessling P, Berger M, et al. Health-related quality of life and treatment satisfaction in North American patients with primary immunodeficiency diseases receiving subcutaneous IgG self-infusions at home. *J Clin Immunol.* 2006;26:65-72.
2. Vivaglobin Product Monograph, Dec 7, 2007, CSL Behring Canada Inc.
3. Gardulf A. Immunoglobulin Treatment for Primary Antibody Deficiencies. *Biodrugs* 2007; 21 (2): 105-116.
4. Eijkhout, H.W., et al. Substitution therapy in immunodeficient patients with anti-IgA antibodies or severe adverse reactions to previous immunoglobulin therapy. *The Netherlands Journal of Medicine*, 2003; 61 (6): 217
5. Horne, J. et al. Anti-IgA antibodies in Common Variable Immunodeficiency (CVID): Diagnostic workup and therapeutic strategy. *Clinical Immunology*, 2007; 122: 156-162.

Upcoming events

- for agenda etc, go to our website www.cipo.ca

AGM & Conference on Immune Disorders
June 20, 2009
Holiday Inn - Metrotown
Burnaby, BC
9 am - 4 pm

Peterborough Patient Meeting
Hobart's Steak House
Lansdowne St.,
Peterborough
July 23, 2009
7 to 10 p.m.

Quebec Conference
Montreal, Quebec
Venue: TBA
Sept. 15, 2009

now developed an efficient and safe gene delivery approach based on non-viral genetic elements, called transposons. Transposons are mobile DNA elements that can integrate into 'foreign' DNA via a 'cut and paste' mechanism. In a way they are natural gene delivery vehicles. The researchers constructed the transposons in such a way that they can carry the therapeutic gene into the target cell DNA. Doing so, they obviate the need to rely on viral vectors.

The VIB researchers are further testing this technology to treat specific diseases including cancer and genetic disorders, in anticipation of moving forward and treat patients suffering from these diseases.