Idefirix® ▼(imlifidase)

About Idefirix® ▼(imlifidase)

A FIRST-IN-CLASS INNOVATION

Idefirix® (imlifidase) is the first and only treatment approved by the European Commission (EC) for desensitization of highly sensitized patients prior to kidney transplantation, allowing them to be considered for life altering kidney transplantation from a deceased donor.[1]

Hansa scientists have harnessed the activity of an enzyme found in *Streptococcus pyogenes*, the bacterium that causes common infections, such as 'strep throat' and developed it into a novel therapy, Idefirix®, which inactivates immunoglobulin G (IgG)[1,2], a key antibody involved in the body's immune response.[3]

THE FIRST AND ONLY LICENSED THERAPY FOR THIS INDICATION

Imlifidase received conditional approval in the European Union in August 2020 and is the first and only therapy to be licensed for desensitization treatment of highly sensitized adult kidney transplant patients with a positive crossmatch against an available deceased donor. The use of imlifidase should be reserved for patients unlikely to be transplanted under the available kidney allocation system, including prioritization programs for highly sensitized patients.[1]

ADDRESSING THE CHALLENGE OF ORGAN REJECTION

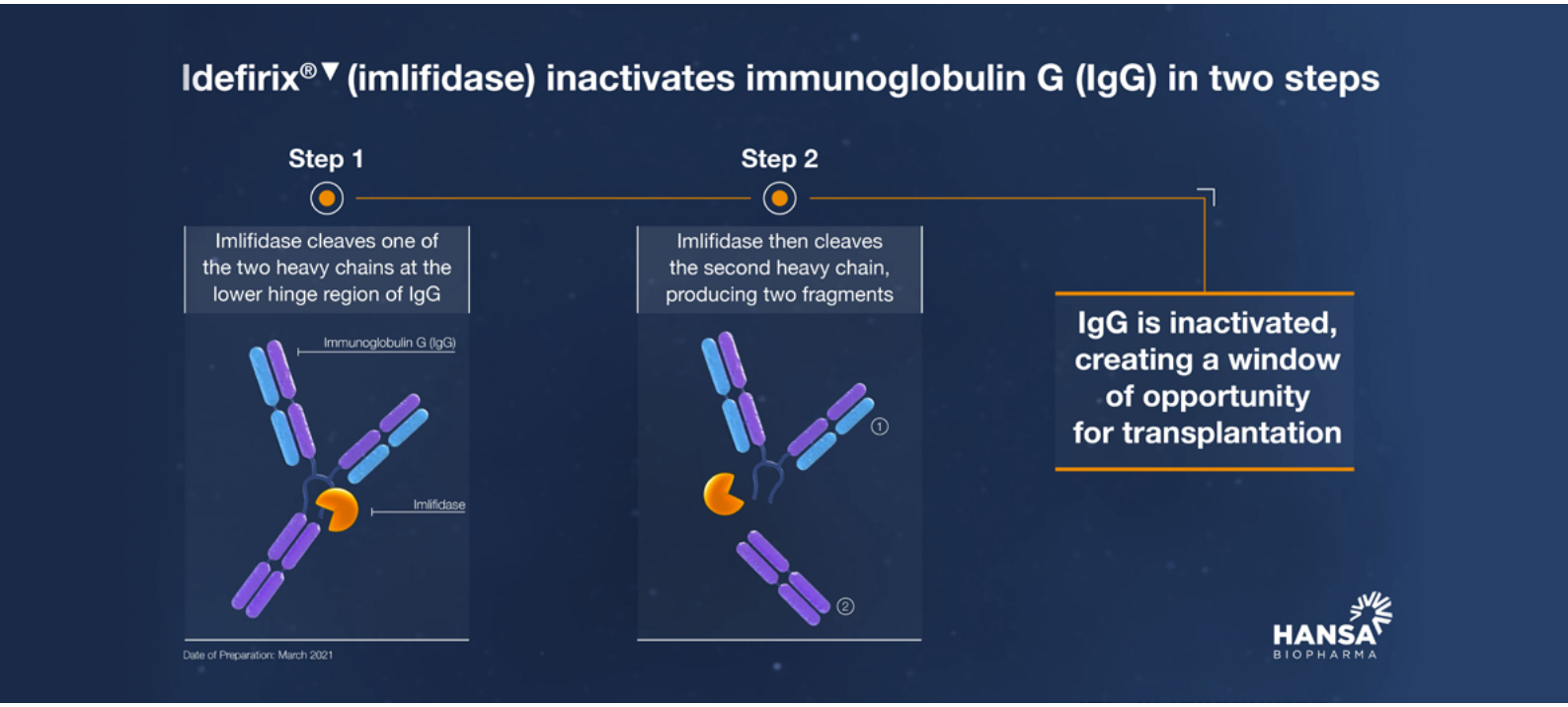
Finding a compatible organ depends on both organ availability and organ suitability or matching. Organ suitability is established primarily according to blood type and by assessing levels of preformed antibodies to donor-specific Human Leukocyte Antigens (HLAs).[4] Risk factors for developing anti-HLA antibodies include previous transplantation, blood transfusion and pregnancy.[5]

The presence of donor-specific HLA antibodies (also known as donor-specific antibodies or DSAs) creates an immunological barrier to transplantation as they trigger an immune response which can cause hyperacute graft rejection (immediate and potentially fatal rejection, requiring the donor organ to be removed).[6] Highly sensitized patients have antibodies against a broad range of HLAs and it is very difficult to identify donors towards which they don't have donor-specific HLA antibodies.[6]

Immunoglobulin G (IgG) is a key antibody produced by the body as part of the its immune response.[3] The majority of anti-HLA antibodies are of the IgG subclass.[7]

A NOVEL MODE OF ACTION

Imlifidase cleaves (or cuts) immunoglobulin G (IgG), via a two-step process that inactivates the IgG antibodies and creates a window of opportunity for a highly sensitized patient to receive a kidney transplant from a deceased donor.[2,8]



OVERVIEW OF IMLIFIDASE'S DEVELOPMENT PROGRAM

There are four completed phase 2 clinical studies of imlifidase in sensitized kidney transplant patients. These studies have generated encouraging outcomes, further evaluating imlifidase's safety profile and the ability of imlifidase to sufficiently inactivate donor-specific IgG antibodies, thus enabling kidney transplantation in highly sensitized adult patients.[8-11]

In clinical trials imlifidase was well tolerated with the most commonly reported adverse events being pneumonia and urinary tract infection (5.6% for both) with all patients recovering fully after routine treatment.[2,8]

WHO ARE HIGHLY SENSITIZED KIDNEY TRANSPLANT PATIENTS?

Currently around 10-30% of patients on transplant waiting lists have preformed antibodies to a broad range of HLAs that can cause tissue damage and potentially transplant rejection, these patients are classed as highly sensitized.[12]

Highly sensitized patients are less likely to be offered a transplant, spend much longer on waiting lists and have a higher chance of dying whilst waiting for a suitable donor.[13-14]

Crossmatching is a laboratory test performed before transplantation that determines whether a potential organ recipient is compatible with the donor organ and identifies recipients who are at risk of developing hyperacute rejection against an available donor.

WHAT IS DESENSITIZATION?

Desensitization is the process of temporarily removing the preformed donor-specific HLA antibodies in order to safely proceed with transplantation.[14]

ADDRESSING UNMET NEED

Highly sensitized patients have higher rates of organ rejection, early graft (transplanted organ) loss and a higher chance of being removed from or dying on the waiting lists.[5,13]

There is a high unmet need to develop treatment options that effectively desensitize kidney transplant patients[8-10], converting a positive crossmatch into a negative one for them to become eligible for transplantation.

Existing methods are non-standardized, involve off-label use of medicines, are highly complex and have varying levels of success. Due to the complex timing, these strategies are usually used for living donor transplantations.[10]

OTHER DISEASE AREAS IN RESEARCH & DEVELOPMENT

Imlifidase could have the potential to benefit many more patients as it is currently being developed to advance the treatment of other rare immunological conditions.[15-16]

Imlifidase is being evaluated in clinical trials to advance the treatment of anti-GBM disease (Goodpasture's disease) and Guillain-Barre syndrome, both of which are serious autoimmune diseases, as well as for Antibody-Mediated kidney transplant rejection (AMR). Its potential is also being explored across oncology applications and in the advancement of gene therapy.[17-18]

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