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Frontier Pharma: Transplantation Therapeutics - A Highly Innovative Pipeline with a Range of Adaptive and Innate Immune-Targeting Programs Focusing on Graft-Versus-Host Disease and Kidney Transplantation

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Summary

In 2015 a total of 127,000 transplantations were performed worldwide, an increase of 5.8% from 2014, with 33,000 of these occurring in the EU and 32,000 in the US. Approximately 60% of these were kidney transplants, with liver, heart, lung, pancreas and small bowel transplantations accounting for the other most common procedures (Dominguez-Gil and Matesanz, 2017). When a graft is transplanted from a genetically non-identical individual, the recipient's immune system recognizes the graft as foreign.

This leads to an anti-graft immune response that involves T cells invading the new tissue, multiplying, and recruiting more immune cells to the transplant site in order to remove this foreign body. Depending on the nature of the incompatibility and the immune response, an acute or chronic rejection process can occur. Conversely, if the graft consists of hematopoietic stem cells or immune cells, there is a risk that they will mount an immune response against the host, known as graft versus host disease (GVHD). There are several safe pharmacological treatment options for acute rejections, but long-term treatment options remain unsatisfactory.

The risk of infection limits the effectiveness of these therapies, and improvements to their efficacy are also needed. Specific transplantation tolerance, in which alloreactive T cells are inactivated while the broader immune response is left intact, removing the need for broad immunosuppressant therapies, can be considered to be the ultimate goal for clinical transplantation. Compared with the overall immunology pipeline, in which there are 1,915 products, the transplantation pipeline is small, with only 244 products. However, of the 145 products in the transplantation pipeline with a disclosed molecular target, there are 65 first-in-class products, acting on a total of 63 distinct first-in-class targets, highlighting the fact that this pipeline displays strong levels of innovation.

Scope

- There is a need for therapies that can achieve graft-specific immunosuppression, without having a general effect on the wider immune system. Which therapies and technologies currently in development are most likely to achieve this?
- There are 63 distinct first-in-class molecular targets in development for transplantation. Which of these hold the strongest potential in the clinic, and which are closest to reaching the market?
- How effective are current therapies for these indications, and how have they been able to improve the general prognosis in recent decades?
- Which molecule types and molecular targets are most prominent across transplantation therapy?
- Which specific types of transplantation are being most heavily studied across the pharmaceutical pipeline?

Reasons to buy

- Appreciate the current clinical and commercial landscapes by considering disease symptoms, pathogenesis, etiology, co-morbidities and complications, epidemiology, diagnosis, prognosis and treatment options for transplantation rejection.
- Identify leading products and key unmet needs within the market.
- Recognize trends in pipeline innovation by analyzing therapies by stage of development, molecule type and molecular target.
- Assess the therapeutic potential of first-in-class targets. Using a proprietary molecular target matrix assessment, first-in-class targets in the pipeline have been assessed and ranked according to clinical potential.
- Consider first-in-class pipeline products with no prior involvement in licensing and co-development deals, which may represent potential investment opportunities.

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