

## Scarlet Therapeutics Announces Seed Financing to Advance Development of Therapeutic Red Blood Cell Platform

- *Pioneering platform to generate novel therapies with potential to treat a wide range of diseases*
- *Financing led by Science Creates Ventures and Meltwind to fund development of the platform and initial product candidates*

BRISTOL, UK, 23 May 2023 – Scarlet Therapeutics (“Scarlet”), a leader in red blood cell-based therapeutics, announces today that it has raised seed funding from Science Creates Ventures and Meltwind to enable it to advance development of its pioneering platform and build a pipeline of novel therapies to treat rare diseases.

Therapeutic red blood cells (tRBCs) are very similar to standard red blood cells but carry additional proteins within them to provide a therapeutic benefit. Red blood cells have pervasive reach throughout the body and a long life of up to 120 days, and expressing therapeutic proteins inside the tRBCs keeps them hidden from the immune system. Previous attempts to develop therapeutic red blood cells have been hindered by the level of therapeutic proteins contained in the red blood cells, thus impacting efficacy, and the technical constraints around manufacturing these therapies. Scarlet’s technologies aim to address these issues by ensuring a high level of therapeutic proteins inside the tRBCs, enabling more efficacious and thus effective therapies and improving the manufacturing by being able to generate the tRBCs from cell lines rather than from donated stem cells.

Scarlet was founded by world renowned blood scientists Professor Ash Toye and Professor Jan Frayne, at the University of Bristol, UK, following their decades of research in this field. This includes their work on the ground-breaking RESTORE study<sup>i</sup> run by NHS Blood and Transplant, with the Universities of Bristol and Cambridge and other partners, which is investigating transfusion of lab-grown blood into patients. Chief Executive Officer, Alistair Irvine, is a scientist and experienced biotech and medtech executive who has worked in the industry for almost three decades.

Scarlet is initially targeting two rare metabolic diseases *hyperammonemia* and *hyperoxaluria*. *Hyperammonemia* is where patients can’t remove toxic ammonia from their system, leading to a range of neurological symptoms and, in severe cases, life-threatening complications. Urea cycle disorders, one of the causes of hyperammonemia, occur in one in 250,000 live births in the US and one in 440,000 live births internationally. For people in the US with urea cycle disorders, there is an 11-year survival rate of around 35% for those who develop hyperammonemia early in life.<sup>ii</sup>

*Hyperoxaluria* is a condition where there is too much oxalate in the urine and is either caused by a rare inherited disorder of the liver (primary *hyperoxaluria*) or where excess oxalate is absorbed into the gastrointestinal tract and then excreted in the urine (secondary *hyperoxaluria*). It can also be caused by severe liver diseases such as cirrhosis.

The platform also has the potential to treat other metabolic diseases requiring enzyme replacement therapy, as well as cancer and autoimmune diseases.

**Alistair Irvine, Chief Executive Officer of Scarlet Therapeutics, said:** “Our game-changing therapeutic red blood cell-based technology is a new modality to treat targets of high value and unmet need. tRBCs have unique qualities; not only are they able to reach all parts of the body, delivering therapeutic

*benefit to where it is needed, but they are enduring – as their predicted 120 day long life will allow dosing every 2-3 months. Because the proteins are hidden inside the therapeutic red blood cell, they are also shielded from the immune system. Our approach allows the cells to be maximally loaded with therapeutic proteins without damaging the properties of the cells and so should be more effective. This funding enables us to further develop our technology to offer patients with debilitating health conditions more effective, longer-lasting treatments.”*

**Harry Destecroix, Managing Partner of Science Creates Ventures,** said: *“We are passionate about creating and backing great companies and are proud to invest in Scarlet Therapeutics. The technology platform is based on revelatory scientific research from Prof. Toye, Prof. Frayne, and their team. It is truly ground breaking with the potential to revolutionise how we treat disease.”*

**Jonathan Milner, CEO and executive director of Meltwind,** said: *“This new therapy modality could make a real difference to patients with a wide range of diseases, particularly metabolic disorders. Millions of people are affected by these life-threatening conditions caused by the build-up of toxic by-products in the body.”*

**-Ends-**

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#### **About Scarlet Therapeutics**

Scarlet Therapeutics is developing a unique platform that generates novel red blood cell-based therapeutics to potentially treat a wide range of diseases. Initially targeted at the rare metabolic diseases, *hyperammonemia* and *hyperoxaluria*, this approach could also be used more broadly to target other metabolic diseases, cancer and autoimmune diseases. These therapeutic red blood cells (tRBCs) are very similar to standard red blood cells, having many unique qualities compared to systemic administration of therapeutic protein, including pervasive reach throughout the body, a long life and the ability to carry the active proteins within the tRBC, thereby shielding them from the immune system. Born out of more than a decade of research at the University of Bristol and its learnings from the RESTORE clinical study, Scarlet also has an exclusive commercial licence for the widely used BEL-A cell line, which provides an alternative platform technology for production of red blood cells.

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<sup>i</sup> [https://www.bristol.ac.uk/news/2023/march/restore-trial.html#:~:text=\(1\)%20RESTORE%20is%20a%20clinical,in%20Red%20Blood%20Cell%20Products](https://www.bristol.ac.uk/news/2023/march/restore-trial.html#:~:text=(1)%20RESTORE%20is%20a%20clinical,in%20Red%20Blood%20Cell%20Products).

<sup>ii</sup> <https://my.clevelandclinic.org/health/diseases/24065-hyperammonemia#:~:text=For%20people%20who%20have%20severe,%25%20and%2023%25%2C%20respectively>.