

Therapeutic area

- **Vascular**

Product

- **Ulteeva Purity™ UHMWPE fibers**

Capabilities

- **Biomaterials expertise**
- **Co-development**
- **R&D support**



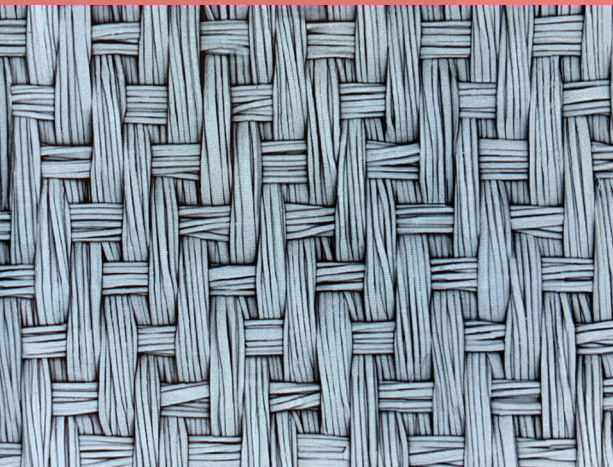
Partnering for the challenge

Many transcatheter aortic valve replacement (TAVR) device companies have been looking to significantly reduce the occurrence of PVLs by introducing unique and innovative components into their devices. The biomedical team at dsm-firmenich was approached by a top global structural heart device company with a strong desire to find a biomaterial that is durable, strong, and lightweight to seamlessly interface with their existing nitinol scaffold for this application.

They also expressed that the chosen material would have to withstand minimum ISO requirements demanded in accelerated wear tests to confirm hemodynamic sturdiness under simulated aortic pressures.

Why it matters

PVL refers to a leak caused by a space left between natural heart tissues and the valve replacement from a previous TAVR or mitral valve replacement (MVR) procedure. This condition most often affects the mitral valve and has a negative impact on both short-term and long-term survival for patients who are suffering, often occurring in up to 25% of patients following TAVR and up to 5% of patients after surgical valve replacement procedures.¹



Our innovation

After several evaluations of the full portfolio from the biomedical division of dsm-firmenich, both teams found their perfect solution:



Ulteeva Purity™ UHMWPE fibers were used to create a fabric that was incorporated into the outer skirt of the ventricular side of the stent, sealing the gaps between the valve and the surrounding tissue

Our impact

Through their recent study of patients at intermediate/low risk of surgical mortality,² **our partner has been very pleased with the results thus far, with even more positive results anticipated in the coming years.**

Reference: 1. Lerakis S, Hayek SS, Douglas PS. Paravalvular aortic leak after transcatheter aortic valve replacement: current knowledge. *Circulation*. 2013;127(3):397-407. doi:10.1161/CIRCULATIONAHA.112.142000 **Reference 2:** Data on file at dsm-firmenich