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As part of its program aimed at [supporting innovations in start-ups and SMEs](#), IFP Energies nouvelles (IFPEN) has created a partnership with FunCell, a promising young company that develops bio-based additives for the paper industry. The additives improve the properties of cellulosic materials (paper, cardboard, packaging and hygiene products) and, notably, give them greater resistance to humidity. This innovation could therefore help promote the use of paper packaging as an alternative to plastics. The additives have already been successfully produced in the laboratory and IFPEN will now help FunCell to extrapolate and develop the process at the industrial pilot scale.

Based in the Isère département in France, [FunCell](#) was founded in 2020. The start-up develops additives for the paper industry using a natural polymer extracted from the residues of a plant-based raw material, which is then slightly modified through a green chemistry process. These bio-based additives improve the properties of the paper, especially in terms of its mechanical strength in both dry and wet states. The paper can also be grafted with different molecules to give it new properties (hydrophobic, antibacterial, antifungal, antiviral, etc.). Another advantage of this technology is its great flexibility, since the additives are incorporated directly into the

materials, without requiring the use of an additional process. Awarded a Grand Prize in the i-Lab 2020 competition, the FunCell solution also meets the durability and toxicity criteria of the packaging market

The partnership with IFPEN is in keeping with the company's policy of supporting SMEs and start-ups working in the eco-industrial field, with a view to reinforcing their competitiveness. IFPEN is able to meet their technical requirements and will provide FunCell with its resources and skills to help them develop innovations with a positive environmental impact.

Isabelle Harter, IFPEN's Head of Open Innovation & SMEs in the Auvergne-Rhône-Alpes region, explains that: "The laboratory results concerning FunCell's technology are really promising. The challenge now lies in being able to extrapolate the process to a pilot scale. To do this, FunCell can draw on IFPEN's recognized experience in scaling-up processes and in industrial development, as well as its skills and know-how in the fields of chemistry and processes."

"We are pleased to be teaming up with IFPEN. We will be able to benefit from their expertise in order to take our technology further and apply it on an industrial scale, since it has obvious potential as regards the eco-responsible packaging market," said Gilles du Sordet, CEO of FunCell.

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