

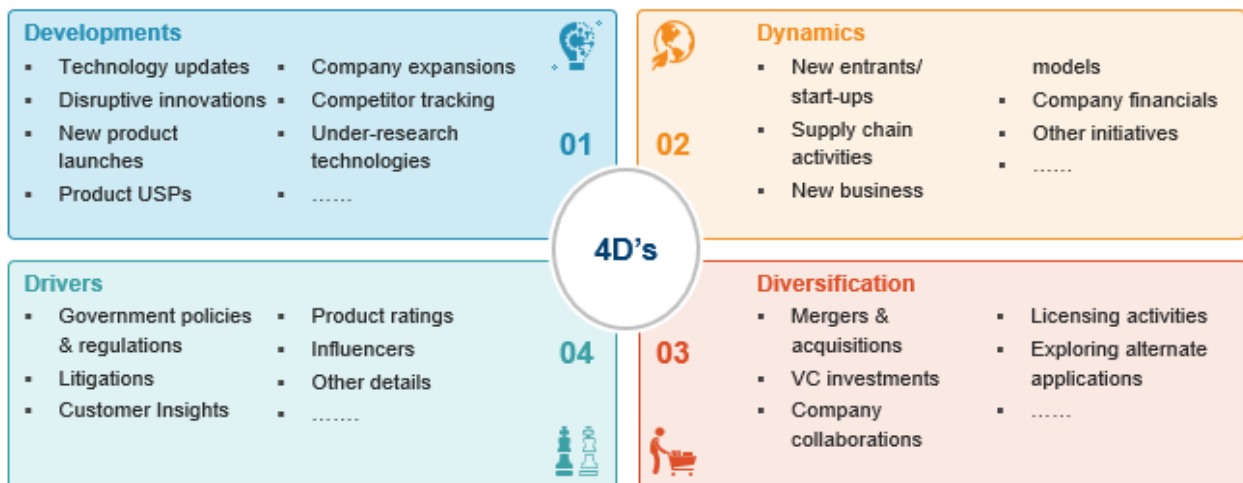
INTELLOTRACKER

Alternative Protein

May 2023



ARANCA'S QUARTERLY SECTORIAL UPDATE ACROSS FOUR DIMENSIONS....





DEVELOPMENTS

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| Technology/ Innovations | | An Israeli startup has created a “ghost” protein made from microalgae. It is tasteless and has no effect on the food texture. It is a white powder derived from chlorella, which is widely used as a health supplement but has a strong and unpleasant seaweed flavor. <i>Source: No Camels-Israeli Innovation News</i> |
| Technology/ Innovations | | Vgarden has developed a new, plant-based tuna substitute, which is being rolled out in the retail and food service sectors in Israel. The tuna-free tuna is based on pea protein, and other natural ingredients including fibers and sunflower oil. It took the startup a year to develop the formula, which has a protein content of up to 14 percent. <i>Source: No Camels-Israeli Innovation News</i> |
| Technology/ Innovations | | Maolac explores animal and plant side streams to identify breast milk protein bio similarity. Its NLP search algorithm can take proteins from any side stream, whether that be fungi, algae, and other plants, as well as animal-based sources such as bovine colostrum, to provide bio functional proteins (BFPs) to industry. <i>Source: NutraIngredients</i> |
| Technology/ Innovations | | Millow has developed a protein from just two ingredients, mycelium, and oats. It employs controlled environment fermentation process where part of oats component is consumed by mycelia resulting in a structured mycelia/oat hybrid. <i>Source: Food Navigator Europe</i> |
| Technology/ Innovations | | Pond is working with Livalta to produce spirulina and other algae-based animal feed ingredients using CO ₂ emissions to address global sustainability challenges of protein shortages and climate change, offering sustainable options for animal feed, including aquaculture. The technology is designed to take CO ₂ emissions out of the air to produce high value protein. <i>Source: Yahoo Finance</i> |
| Technology/ Innovations | | Israeli food tech start-up Mush Foods is upcycling food waste to grow ‘highly nutritious’ mycelium protein. <i>Source: Food Navigator Europe</i> |
| Technology/ Innovations | | Kinoko is employing its solid-state fermentation technology to create protein-packed nutritious foods containing all nine essential amino acids plus the legume’s fibres. Fermentation and the mycelium give the legumes an umami flavour which tastes like a “combination between lentils and mushrooms”. <i>Source: Vegconomist</i> |



DYNAMICS

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| New Facility | | ADM and Marel open innovation centre in Wageningen, which aims to prototype, manufacture and market alternative protein products and pilot processing techniques in collaboration with food manufacturers, food scientists, extrusion experts and culinary professionals. <i>Source: Nutrition Insight</i> |
| New Facility | | Meati has launched a new facility, Mega Ranch and seeks to place its mushroom-root-based, sliced meat product in “tens of thousands of stores” in 2023. Through the facility, Meati can produce by late 2023 “tens of millions of pounds” of its alternative meat protein using a naturally occurring strain of mycelium. <i>Source: Food Navigator USA</i> |
| Market Expansion | | Mycotechnology is set to accelerate its expansion into Europe after approval of its mycelium-based plant proteins by the European Commission. It has hired its first European sales representatives, based in Germany and the Netherlands, and has recently announced a partnership with Brenntag for distribution in the region. <i>Source: Food Navigator Europe</i> |



DIVERSIFICATION

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| VC Investment | | Upycled Plant Power (UPP), a sustainable food harvesting startup, has secured £500,000 in pre-seed funding to develop and commercialize its broccoli upcycling technology. <i>Source: UK Tech News</i> |
| VC Investment | | London-based Milltrust Ventures and Ireland’s Earth First Food Ventures are launching a new \$300M (£242M) Smart Protein Fund directed at funding alternative proteins companies to “disrupt and decarbonize” the food industry. <i>Source: Vegconomist</i> |
| VC Investment | | Canadian startup Future Fields has raised \$11.2 million in a seed extension round to scale up fruit flies as production vehicles for high-value recombinant proteins. <i>Source: AgFunderNews</i> |
| VC Investment | | ICL has invested €2.75 million in Arkeon to support its innovative and sustainable one-step fermentation bioprocess, which creates completely customizable protein ingredients by capturing the greenhouse gas carbon dioxide and converting it into the 20 proteinogenic amino acids necessary for human nutrition. The resulting alternative proteins are carbon negative and clean-label functional ingredients. <i>Source: Business Wire</i> |

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| Company Investment | | <p>Roquette has invested in Daiz, a Japanese start-up that has developed the means of using plant seed germination and an extrusion process to enhance the texture, flavor, and nutritional profile of plant-based foods. The companies will explore a novel approach of selective plant-based protein cultivation through seed germination techniques to develop further meat alternatives.</p> <p>Source: Food Ingredients</p> |
| Funding | | <p>The NSW Government's Tech Central Research and Innovation Infrastructure Fund has granted \$8 million towards projects at the University of Sydney, UTS and ARIA Research. Two projects involving University of Sydney researchers have received funding under this latest round – for alternative protein development and AI technology to assist the blind.</p> <p>Source: The University of Sydney</p> |
| Company Collaboration | | <p>Kindness, a pioneering plant-based food tech company, is looking to partner with like-minded brands that desire to innovate within the plant-based protein space. The brand strives for variety, desirability, affordability, accessibility — and a superior taste.</p> <p>Source: Food Dive</p> |
| Company Collaboration | | <p>FrieslandCampina Ingredients has signed a deal with a specialist biotechnology company, Triplebar Bio, to develop and increase the production of cell-based proteins using precision fermentation.</p> <p>Source: European Supermarket Magazine</p> |

DRIVERS

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| Government Approval | | <p>Calysta has gained “generally recognized as safe” (GRAS) status from the U.S. Food and Drug Administration (FDA), allowing use of its FeedKind fermented protein in salmonid feed.</p> <p>Source: Seafood Source</p> |
| Government Regulation | | <p>South Korea has released a series of new rules and policies to boost the development of alternative protein foods. The Korean Ministry of Food and Drug Safety recently published a draft amendment of the Food Code for public comment to establish a specific food standard regulating alternative protein foods to keep up with the rapid growth of the alternative protein market and consumer needs.</p> <p>Source: The National Law Review</p> |

SOLUTION PORTFOLIO – TECHNOLOGY RESEARCH & ADVISORY

| IP Strategy | Technology Intelligence | Growth & Strategy |
|--|---|---|
| How best can we proactively manage and monetise our technical knowhow / intellectual property? | How best can we keep abreast of technology trends, competitor activity and headwinds / tailwinds in our domain? | Which technologies do we invest in? How do we ensure quick wins? Speed to market? |
| <ul style="list-style-type: none"> ▪ IP Portfolio Analysis | <ul style="list-style-type: none"> ▪ Competitor Benchmarking | <ul style="list-style-type: none"> ▪ R&D Strategy Roadmaps |
| <ul style="list-style-type: none"> ▪ IP Monetisation | <ul style="list-style-type: none"> ▪ Tech / IP Landscapes | <ul style="list-style-type: none"> ▪ Technology Scouting |
| <ul style="list-style-type: none"> ▪ IP Valuation | <ul style="list-style-type: none"> ▪ Technology Watch | <ul style="list-style-type: none"> ▪ Open Innovation |
| <ul style="list-style-type: none"> ▪ Prior Art Searches | <ul style="list-style-type: none"> ▪ Market Analysis / Trends | <ul style="list-style-type: none"> ▪ Product Development |



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