Technical appendix: State of the European alternative protein research and innovation ecosystem

Publications

Search criteria

Data was sourced from Dimensions, an interlinked research information system provided by Digital Science (https://www.dimensions.ai). Given the interdisciplinary nature of alternative protein research and the wide range of potentially relevant publications that could fall under that definition, complex search terms were devised that allowed us to trigger numerous publications that may be relevant to our analysis. These search teams were:

1. ("alternative protein" or "meat substitutes" or "slaughter-free meat" or "animal-free meat" or "vegan meat" or "meat alternative" or "animal-free" or "animal substitute" or "meat substitute" or "meat analogue" or "meat analog" or "seafood substitutes" or "plant-based seafood" or "fake fish" or "fish substitutes" or "plant-based fish" or "smart protein" or "clean meat" or "future food" or "sustainable protein" or "protein production")
2. "food" AND ("protein") AND ("plant" OR "plant based" OR "plant based meat" OR "vegetable" OR "vegetarian" OR "vegan" OR "plant based seafood" OR "plant based fish" OR "algae" OR "algal" OR "macroalgae" OR "kelp" OR "microalgae" OR "seaweed" OR "crop")
3. ("plant based milk" OR "non dairy milk" OR "oat milk" OR "soy milk" OR "rice milk" OR "plant based cheese" OR "plant based dairy" OR "vegan dairy" OR "vegan cheese" OR "vegan milk" OR "dairy substitute" OR "milk substitute" OR "dairy alternative" OR "milk alternative" OR "dairy replacement" OR "milk replacement" OR "cashew cheese" OR "plant based egg" OR "egg substitute" OR "egg replacement" OR "egg alternative" OR "vegan egg")
4. "food" AND ("protein") AND ("precision fermentation" OR "fermentation derived" OR "fermentation made" OR "biomass fermentation" OR "fermentation" OR "mycoprotein" OR "single cell" OR "microbial" OR "fusarium" OR "quorn" OR "fusarium venenatum" OR "fungus" OR "fungi" OR “fungal” OR "mycelium" OR "mycelial" OR “recombinant protein” OR “microbial cell factories” OR “recombinant expression” OR "microalgae" OR "microalgal" OR "yeast" OR "cellular agriculture" OR "synthetic biology" OR "edible filamentous fungi" OR "fungal hyphae" OR

"bacteria" OR "bacterial" OR "engineering biology" OR "hydrogen oxidizing bacteria" OR "microbial biomass" OR "saccharomyces cerevisiae")

5. ("cultivated meat" OR "cultured meat" OR "cell cultured meat" OR "lab grown meat" OR "cell-based meat" OR "cellular agriculture" OR "synthetic meat" OR "cell grown meat" OR "cellular meat" OR "stem cell meat" OR "cultivated seafood" OR "cultured seafood" OR "lab grown seafood" OR "cell based seafood" OR "lab grown fish" OR "cell-based fish" OR "cell cultured fish" OR "cell cultured seafood" OR "cellular aquaculture" OR "cell grown seafood" OR "cell-grown fish" OR "cellular seafood" OR "in vitro meat" OR "cultivated fat" OR "cultured fat")

The time period was limited to 2020-2025 inclusive. Countries selected for analysis were Austria, Belgium, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain and Sweden, Norway, Switzerland, and the United Kingdom.

Preprints, proceedings, and conference abstracts were excluded from the search scope, and the 'Title and abstract selected' search setting was used to ensure results were more specific to the scope of the keywords, as per guidelines from the Dimensions technical support team. Data was retrieved in January 2026.

Data screening

Results of the publications searches were screened against a set of inclusion/exclusion criteria to determine whether they were in scope for this analysis. Publications on plant-based, fermentation-made, or cultivated proteins and ingredients that satisfied the following **inclusion criteria** were considered to be within the scope of this analysis:

Publications on the classification or characterisation of a plant, algal or microbial species or cultivated animal cells as a source of protein or other ingredients (including, but not limited to, lipids, enzymes, or fibres) which can contribute to improving the sensory and techno-functional properties of an alternative protein ingredient or product with a potential use case in human food.

Publications on how the processing of plant, algal, microbial, or cultivated animal tissue affects protein functionality or quality for use as a food.

Publications on crop or strain optimisation or agronomic or bioprocessing practices that examine or aim to improve protein quality or yield or improve ease of processing.

Publications on the characterisation and/or optimisation of alternative feedstocks or cell culture media or bioprocessing methods, which examine strategies for their utilisation, including life cycle assessments, with the aim of improving the sustainability, efficiency, and/or economic viability of the

process.

Publications on the characterisation of blended products where the results are relevant for the development of improved hybrid alternative protein products and/or the improvement of the functionality of individual plant, microbial, or cultivated proteins.

Publications that compare the functional properties of plant, microbial, or cultivated protein ingredients or products with conventional animal proteins where the findings are relevant for optimising the techno-functional attributes of the alternative protein ingredient or product.

Publications on the biochemical properties (flavour, aroma, nutritional properties, allergenicity) of plant, algal, microbial or cultivated proteins.

Publications on the societal, policy, and regulatory aspects or studies relating to consumer acceptance or techno-economic analysis of alternative proteins.

English language publications

Publications that met one or more of the following **exclusion criteria** were judged to be outside the scope of this analysis:

Publications on broad-spectrum comparisons of animal- and plant- or microbial-based protein diets, or consumer attitudes towards these diets, where the outcomes were not relevant for the development of alternative protein products.

Publications on the classification of a plant, algal, microbial species, or cultivated animal proteins, with a stated use case for pet food or animal feed only.

Publications on the general characteristics of underutilised plant, algal, or microbial species as foods where protein is not a focus or is only a minority focus.

Publications on the characterisation of blended products where the aim is the improvement of the functionality of animal protein products or ingredients.

Publications on the characterisation of a plant, algal, or microbial protein ingredient functionality where the stated aim is the development of nutraceuticals, bioactive peptides, or some other health-promoting ingredient.

Publications on the characterisation of plant, algal, or microbial proteins, or associated processing techniques, where the stated aim was the development of a food that does not substitute animal proteins (eg, bread, pasta, snacks).

Publications on the on the biochemical properties (flavour, aroma, nutritional properties, allergenicity) of plant, algal, or microbial proteins where the stated use case is not substituting animal products

(meat, egg, dairy analogues) or no specific use case is given.
Publications on the development of plant-, algal-, or microbial-based foods as medical nutrition solutions or publications on the development of alternative protein products where the stated end user is a vulnerable person (eg, children, end users with a diagnosed medical condition).
Corrections to previously published studies already included in the dataset.
Publications on any other topics not listed in the inclusion criteria.
Non-English language publications.

Researcher ID reverse search

To improve the accuracy of the dataset used for this analysis, we implemented a new search step in addition to the methodology used in the previous iteration of this report. Caveats and limitations to this new search step are considered below.

Following the screening step, the publication IDs for all publications deemed to be in scope in the years 2020-2025 were input into the Dimensions.ai database. In the Dimensions.ai Landscape & Discovery application, researcher IDs were downloaded for the 500 most productive authors in the dataset. Researcher IDs were limited to 500 individuals by the Dimensions.ai platform and represented approximately 10% of the total for in-scope countries. However, we estimate that this 10% collectively contribute approximately 40% of the total publications output in the time period analysed.

The researcher IDs were then searched in the Dimensions.ai interface with the same filters as used in the original search step, and the full publication data for these researchers were downloaded, screened as before against the inclusion/exclusion criteria, and added to the final dataset.

Data processing

Publications were manually sorted on the basis of alternative protein pillar and research category in spreadsheet format. Bibliometric data were then analysed using the Dimensions Landscape & Discovery application by inputting the relevant publication IDs to this platform and extracting the results.

When ranking countries based on a per capita or per gross domestic product per capita based on purchase power parity (GDP PPP) basis, figures for country populations were sourced from Statista, while figures for GDP per capita (PPP) were sourced from the World Bank.

Caveats and limitations to this analysis

Limitation	Rationale and possible implications
Ongoing activities are not captured	The majority of the public funding for alternative protein research in Europe has come in recent years, with 2024 seeing a record €300 million investment by European public and nonprofit research funders into the space. As such, this report does not capture the volume of research activity that is currently ongoing. Equally important is the fact that much of the historical R&D work on this topic has been done in the commercial realm by startups, established industry, and contract research organisations. As a result, the data presented in this analysis do not give a full overview of the total body of research that has been done on alternative proteins in Europe.
Data limitations	While this analysis was developed using a rigorous protocol, due to inevitable limitations around the identification of appropriate search terms and the total number of publications available in the Dimensions.ai platform, it is likely an underestimate of the true size of the alternative protein research community in Europe. The addition of a new researcher ID reverse search step to this analysis means we have been able to develop a more accurate assessment of the trends and dynamics of this research community than in the previous iteration of this report. However, it may also bias the data towards certain highly productive researchers and research areas. As a result, while the dataset is undoubtedly more comprehensive than in the previous iteration of this report, it probably still underrepresents the true size of the research community.
Researcher classification	We acknowledge that not all of the researchers who have contributed to the publications included in this analysis would consider themselves 'alternative protein researchers' and this exercise is not about labelling them as such. Rather, it aims to understand which researchers are contributing to moving alternative proteins towards taste and price parity with conventional animal proteins and what can be done to better support them.
Measuring impact	Throughout this report we rank countries and institutions on the basis of their total research output as measured by unique publications. We acknowledge that overall research *output* is not a reliable indicator of *quality* or *impact* and, as a result, the overall contribution that specific actors have made to the growth of this field may not be accurately represented.

Patents

Search criteria

Data was sourced from Dimensions, an interlinked research information system provided by Digital Science (https://www.dimensions.ai). Given the interdisciplinary nature of alternative protein R&I and the wide range of potentially relevant patents that could fall under that definition, complex search terms were devised that allowed us to trigger numerous patents that may be relevant to our analysis. These search teams were:

1. ("meat substitute" OR "meat analogue" OR "meat analog" OR "vegan meat" OR "meat alternative")
2. ("fish substitute" OR "fish analogue" OR "fish analog" OR "fish meat" OR "fish alternative" OR "seafood substitute" OR "seafood analogue" OR "seafood analog" OR "seafood meat" OR "seafood alternative")
3. ("plant based milk" OR "non dairy milk" OR "oat milk" OR "soy milk" OR "rice milk" OR "plant based cheese" OR "plant based dairy" OR "vegan dairy" OR "vegan cheese" OR "vegan milk" OR "dairy substitute" OR "milk substitute" OR "dairy alternative" OR "milk alternative" OR "dairy replacement" OR "milk replacement" OR "cashew cheese" OR "plant based egg" OR "egg substitute" OR "egg replacement" OR "egg alternative" OR "vegan egg")
4. ("precision fermentation" OR "fermentation derived" OR "fermentation made" OR "biomass fermentation" OR "fermentation" OR "mycoprotein" OR "single cell" OR "microbial" OR "fusarium" OR "fusarium venenatum" OR "fungus" OR "fungi" OR “fungal” OR "mycelium" OR "mycelial" OR “recombinant protein” OR “microbial cell factories” OR “recombinant expression” OR "microalgae" OR "microalgal" OR "yeast" OR "edible filamentous fungi" OR "fungal hyphae" OR "bacteria" OR "bacterial" OR "engineering biology" OR "hydrogen oxidizing bacteria" OR "microbial biomass" OR "saccharomyces cerevisiae") AND ("meat substitute" OR "meat analogue" OR "meat analog" OR "vegan meat" OR "meat alternative" OR "plant based milk" OR "non dairy milk" OR "oat milk" OR "soy milk" OR "rice milk" OR "plant based cheese" OR "plant based dairy" OR "vegan dairy" OR "vegan cheese" OR "vegan milk" OR "dairy substitute" OR "milk substitute" OR "dairy alternative" OR "milk alternative" OR "dairy replacement" OR "milk replacement" OR "cashew cheese" OR "plant based egg" OR "egg substitute" OR "egg replacement" OR "egg alternative" OR "vegan egg")

5. ("cultivated meat" OR "cultured meat" OR "cell cultured meat" OR "lab grown meat" OR "cell-based meat" OR "cellular agriculture" OR "synthetic meat" OR "cell grown meat" OR "cellular meat" OR "stem cell meat" OR "cultivated seafood" OR "cultured seafood" OR "lab grown seafood" OR "cell based seafood" OR "lab grown fish" OR "cell-based fish" OR "cell cultured fish" OR "cell cultured seafood" OR "cellular aquaculture" OR "cell grown seafood" OR "cell-grown fish" OR "cellular seafood" OR "in vitro meat" OR "cultivated fat" OR "cultured fat")

The publishing date period was limited to 2015-2025. Countries selected for analysis were Austria, Belgium, Bulgaria, Croatia, Republic of Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, and the United Kingdom.

The 'Full data' search setting was used to ensure all patents relevant to the scope of the keywords were captured by including mentions of alternative protein use cases in the invention description and claims. Data was retrieved in February 2026.

Data screening

Results of the patent searches were screened against a set of inclusion/exclusion criteria to determine whether they were in scope for this study. Patents relevant to plant-based, fermentation-made, or cultivated proteins and ingredients that satisfied the following **inclusion criteria** were considered to be within the scope of this analysis:

Patents describing the development or optimisation of a plant, algal or microbial species or cultivated animal cells as a source of protein or other ingredients (including, but not limited to, lipids, enzymes, or fibres) that can contribute to improving the sensory and techno-functional properties of an alternative protein ingredient or product with a stated use case for human food.

Patents describing the development or optimisation of a processing method of plant, algal, microbial, or cultivated animal tissues to improve protein functionality or quality for use as a food.

Patents describing crop or strain optimisation or agronomic or bioprocessing innovations that improve protein quality or yield or improve ease of processing.

Patents describing the development or optimisation of alternative feedstocks or cell culture media or bioprocessing methods or strategies for their utilisation with the aim of improving the sustainability, efficiency, and/or economic viability of the process.

Patents describing the development or optimisation of hybrid products where the stated aim is the reduction or substitution of animal products and/or the improvement of the functionality of plant, microbial, or cultivated proteins.

Patents describing the optimisation of the biochemical properties (flavour, aroma, nutritional properties, allergenicity) of plant, algal, microbial or cultivated proteins or the development of novel ingredients therefrom.

Publications that met one or more of the following **exclusion criteria** were judged to be outside the scope of this analysis:

Patents describing the development or optimisation of a plant, algal or microbial species or cultivated animal cells, where the outcomes were not relevant for the development of alternative protein products.

Patents describing the development or optimisation of a plant, algal, microbial species, or cultivated animal proteins, with a stated use case for pet food or animal feed only.

Patents describing the development or optimisation of blended products where the aim is the improvement of the functionality of animal products or ingredients.

Patents describing the development or optimisation of a plant, algal, or microbial protein ingredient functionality where the stated aim is the development of nutraceuticals, bioactive peptides, or some other health-promoting ingredient.

Patents describing the development or optimisation of plant, algal, or microbial proteins, or associated processing techniques, where the stated aim was the development of a food that does not substitute animal proteins (eg, bread, pasta, snacks).

Patents describing the development or optimisation of the biochemical properties (flavour, aroma, nutritional properties, allergenicity) of plant, algal, or microbial proteins where the stated use case is not substituting animal products (meat, egg, dairy analogues).

Patents describing the development or optimisation of plant-, algal-, or microbial-based foods as medical nutrition solutions or publications on the development of alternative protein products where the stated end user is a vulnerable person (eg, children, end users with a diagnosed medical condition).

Patents describing any other technological advancements not listed in the inclusion criteria.

Data processing

To facilitate more efficient screening, duplicates were removed on the basis of Family ID with the assumption that if one member of a patent family was judged to be in scope then all other patents in the same family would also be included in later analysis. Following screening, the results were sorted into four groups based on their corresponding alternative protein technology pillar:

- Plant-based meat, seafood, egg, and dairy.
- Fermentation-made proteins and ingredients.
- Cultivated meat and seafood.
- Cross-cutting patents, which incorporated results that covered more than one alternative protein pillar or which did not fit squarely into one of the previous groups.

Patent families were assigned to a research category. Additionally, all patent families were assigned to an end-product type and where relevant were also assigned to an ingredient type.

It was found that the name given to a significant number of assignees was not consistent across all patent families in their portfolios, particularly in the case of startups that have changed their name over time, but also due to inconsistent assignee naming in the data . As a result, this issue needed to be manually fixed to ensure consistency. During this step, assignee names were also updated to reflect the most up-to-date trade name of each assignee.

Additionally, while the Dimensions platform assigns a GRID ID to most of the large public and private organisations, therefore ensuring important information relating to these organisations is captured and can be easily accessed, it was found that more than half of assignees in this data set did not have a GRID ID in Dimensions. As a result, they were not included by default in country breakdown analyses in the Dimensions Landscape & Discovery application so this data needed to be manually inputted and analysed in spreadsheet format.

Following screening and sorting of patent families, Family IDs were used to download the full dataset of all relevant patents published from 2015-2025 inclusive and blank cells were auto-filled with the relevant information on alternative protein pillar, research category, product and ingredient type, trade name, and country to complete the dataset for subsequent analysis.

Data were then analysed using the Dimensions Landscape & Discovery application by inputting the relevant publication IDs to this platform and extracting the results.

When ranking countries on a per capita basis, figures for country populations were sourced from Statista.

Caveats and limitations to this analysis

Limitation	Rationale and possible implications
Patents are only one metric for measuring innovation	Patents are not the only way to protect IP and the food industry relies heavily on trade secrets, so this likely only represents a small fraction of innovation going on across the sector.

Recently filed patents are not captured	This analysis is based on published patents as they are the most reliable source of information. However, patents under examination are not captured (due to the 18-month publication delay), so this does not capture the full breadth of patents filed and is therefore an underestimate of the total.
Ongoing R&I activities are not captured	The majority of public funding for alternative proteins has only come in recent years, so this analysis likely underrepresents the volume of R&I activity currently ongoing in the public and private realm.
Data limitations	This report aims to give the reader the best understanding of the characteristics and dynamics of the European alternative protein patent landscape that is currently available. While this analysis was developed using a rigorous protocol (described in detail above), due to inevitable limitations around the use of appropriate search terms and the total number of patents available in the Dimensions.ai platform, it is likely an underestimate of the true size of the alternative protein patent landscape in Europe.
Analysis is not global in scope	This analysis aims to present a thorough overview of the European alternative protein patent landscape, including overall growth, key organisations and countries, and specific fields of innovation. This was done on the basis of patents published on topics related to alternative proteins by European organisations (defined here as those within the 27 EU member states, along with Norway, Switzerland, and the United Kingdom) during the years 2015-2025 inclusive. However, it does not capture information on patents filed in European jurisdictions by non-European assignees.

Funding

Data source

Data was sourced from a combination of public funding databases, manual information curation, and from Dimensions, an interlinked research information system provided by Digital Science (https://www.dimensions.ai).

For public databases, automated searches were conducted using a series of keywords relating directly to alternative proteins to generate a shortlist of grants that contained these keywords (ie, in the title or description of the project). These keywords were:

1. alternative protein; sustainable protein; fake meat; meat substitutes; clean meat; slaughter-free meat; animal-free meat; meat analogue; vegan meat; meat alternative; animal-free; animal substitute; smart protein; future food; protein production; non-animal; sustainable food; fake fish; fish substitutes; animal-free seafood; smartfish; non-animal ingredient; fake seafood; seafood substitutes;
2. plant-based meat; vegetable-based protein; plant-based protein; plant-based seafood; plant-based fish; plant protein; plant based; plant-based; algae protein; algal protein; macroalgae protein; kelp protein; microalgae protein; seaweed protein; plant-based milk; non-dairy milk; oat milk; soy milk; rice milk; plant-based cheese; vegan milk-breast; plant-based dairy; vegan dairy; cashew cheese; plant-based egg; plant based egg; egg substitute; egg replacement; plant-based seafood;
3. cultured meat; cell cultured; lab-grown meat; lab grown meat; cell-based meat; cell based meat; cellular agriculture; synthetic meat; artificial meat; clean meat; cell-grown meat; cellular meat; stem cell meat; cultivated seafood; cultured seafood; lab-grown seafood; cell-based seafood; lab-grown fish; cell-based fish; cell-cultured fish; cell-cultured seafood; cellular aquaculture; cell-grown seafood; cell-grown fish; cellular seafood; muscle tissue engineering; cultivated fat; cultured fat; serum free medium; in vitro meat; cultured animal cells;
4. precision fermentation; fermentation-derived protein; biomass fermentation protein; precision fermentation protein; traditional fermentation protein; mycoprotein; fungi-based meat; fungi-based protein; single cell protein; single-cell protein; microbial protein; fusarium protein; quorn; fusarium venenatum; fungus protein; mycelial protein; mycelium protein; mycelium meat; recombinant protein; microbial cell factories; recombinant expression; microalgae protein; yeast protein; edible filamentous fungi; bacterial protein; hydrogen-oxidizing bacteria; microbial biomass;

Given the interdisciplinary nature of alternative protein research and the wide range of potentially relevant grants that could fall under that definition, complex search terms were devised for Dimensions.ai that allowed us to trigger grants that may be relevant to our analysis. These search teams were:

5. "food" AND ("protein") AND ("plant" OR "plant based" OR "plant based meat" OR "vegetable" OR "vegetarian" OR "vegan" OR "plant based seafood" OR "plant based fish" OR "algae" OR "algal" OR "macroalgae" OR "kelp" OR "microalgae" OR "seaweed" OR "crop"
6. ("plant based milk" OR "non dairy milk" OR "oat milk" OR "soy milk" OR "rice milk" OR "plant based cheese" OR "plant based dairy" OR "vegan dairy" OR "vegan cheese" OR "vegan milk" OR "dairy substitute" OR "milk substitute" OR "dairy alternative" OR "milk alternative" OR "dairy replacement" OR "milk replacement" OR "cashew cheese" OR "plant based egg" OR "egg substitute" OR "egg replacement" OR "egg alternative" OR "vegan egg"
7. "food" AND ("protein") AND ("precision fermentation" OR "fermentation derived" OR "fermentation made" OR "biomass fermentation" OR "fermentation" OR "mycoprotein" OR "single cell" OR "microbial" OR "fusarium" OR "quorn" OR "fusarium venenatum" OR "fungus" OR "fungi" OR “fungal” OR "mycelium" OR "mycelial" OR “recombinant protein” OR “microbial cell factories” OR “recombinant expression” OR "microalgae" OR "microalgal" OR "yeast" OR "cellular agriculture" OR "synthetic biology" OR "edible filamentous fungi" OR "fungal hyphae" OR "bacteria" OR "bacterial" OR "engineering biology" OR "hydrogen oxidizing bacteria" OR "microbial biomass" OR "saccharomyces cerevisiae"
8. "cultivated meat" OR "cultured meat" OR "cell cultured meat" OR "lab grown meat" OR "cell-based meat" OR "cellular agriculture" OR "synthetic meat" OR "cell grown meat" OR "cellular meat" OR "stem cell meat" OR "cultivated seafood" OR "cultured seafood" OR "lab grown seafood" OR "cell based seafood" OR "lab grown fish" OR "cell-based fish" OR "cell cultured fish" OR "cell cultured seafood" OR "cellular aquaculture" OR "cell grown seafood" OR "cell-grown fish" OR "cellular seafood" OR "in vitro meat" OR "cultivated fat" OR "cultured fat"

The time period was limited to 2010-2025. Countries selected for analysis were Austria, Belgium, Bulgaria, Croatia, Republic of Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Norway, Switzerland, United Kingdom. Data was retrieved in February 2026.

Data screening

Results of the grants searches from each data source were compiled, checked for duplicates, and then screened against a set of inclusion/exclusion criteria to determine whether they were in scope for this study.

Grants on plant-based, fermentation-made, or cultivated proteins and ingredients that satisfied the following **inclusion criteria** were considered to be within the scope of this analysis:

Grants on the classification or characterisation of a plant, algal or microbial species or cultivated animal cells as a source of protein or other ingredients (including, but not limited to, lipids, enzymes, or fibres) which can contribute to improving the sensory and techno-functional properties of an alternative protein ingredient or product with a stated use case for human food.

Grants on how the processing of plant, algal, microbial, or cultivated animal tissue affects protein functionality or quality for use as a food.

Grants on crop or strain optimisation or agronomic or bioprocessing practices, which examine or aim to improve protein quality or yield, or improve ease of processing.

Grants on the characterisation and/or optimisation of alternative feedstocks or cell culture media or bioprocessing methods, which examine strategies for their utilisation, including life cycle assessments, with the aim of improving the sustainability, efficiency, and/or economic viability of the process.

Grants on the characterisation of hybrid products where the stated aim is the reduction or substitution of animal products and/or the improvement of the functionality of plant, microbial, or cultivated proteins.

Grants which compare the functional properties of plant, microbial, or cultivated protein ingredients or products with conventional animal proteins, where the findings are relevant for optimising the techno-functional attributes of the alternative protein ingredient or product.

Grants on the biochemical properties (flavour, aroma, nutritional properties, allergenicity) of plant, algal, microbial or cultivated proteins.

Grants on the societal, policy, and regulatory aspects or studies which relate to consumer acceptance or techno-economic analysis of alternative protein foods.

Grants that met one or more of the following **exclusion criteria** were judged to be outside the scope of this analysis:

Grants on broad-spectrum comparisons of animal- and plant- or microbial-based protein diets, or consumer attitudes towards these diets, where the outcomes are not relevant for the development of alternative protein products.

Grants on the classification or characterisation of a plant, algal, microbial species, or cultivated animal proteins, with a stated use case for pet food or animal feed only, where there was no aim or potential for the improvement of the functionality of plant, microbial, or cultivated proteins for human

consumption.

Grants on the general characteristics of underutilised plant, algal, or microbial species as foods where protein is not a focus or is only a minority focus.

Grants on the characterisation of blended or hybrid products where the aim is the improvement of the functionality of animal products or ingredients.

Grants on the characterisation of a plant, algal, or microbial protein ingredient functionality where the stated aim is the development of nutraceuticals, bioactive peptides, or some other health-promoting ingredient.

Grants on the characterisation of plant, algal, or microbial proteins, or associated processing techniques, where the stated aim was the development of a food which does not substitute animal proteins (eg, bread, pasta, snacks).

Grants on the biochemical properties (flavour, aroma, nutritional properties, allergenicity) of plant, algal, or microbial proteins where the stated use case is not a substituting protein-based food (meat, egg, dairy analogues).

Grants on the development of plant-, algal-, or microbial-based foods as medical nutrition solutions or grants on the development of alternative protein products where the stated end user is a vulnerable person (eg, end users with a diagnosed medical condition).

Grants on any other topics not listed in the inclusion criteria.

Caveats and limitations to this analysis

Limitation	Rationale and possible implications
Funding is reported by the jurisdiction of the funder	It is important to note that the regional analysis above was performed on the basis of the jurisdiction of the funding body. The exception is the UK, where the contribution of international funders was included in the reporting. This means that the total funding in a given region will not reflect all the funding that has gone into that region from external funders, and excludes all funding from the European Commission. For the purpose of this report, funding from the European Commission was analysed as a separate jurisdiction, as the EU. In the case of the UK, for the period of non-association with Horizon Europe, funding for EU-awarded projects is listed under the UK total as funded under the Horizon Europe Guarantee.
Inconsistent levels of	For some countries, data coverage is significantly less extensive than others (particularly where the public funder does not release detailed

public funding data	funding information). This is noted throughout the report where applicable. Factors that influenced data availability for this report included the presence or absence of funding databases for national and nonprofit funders, the sensitivity of those funding databases to our chosen keywords (partly but not exclusively linked to the language of the database), and the architecture of the funding database (including the availability of funding information). Dimensions.ai was used to supplement the data available from public databases, but many of the same limitations apply.
Subjectivity of scope decisions	While all efforts have been made to ensure the data presented in this report is accurate and consistent, the decision about the inclusion of a given project is subjective. While the decision-making rubric is provided in the methodology section, the following limitations apply: • Relevance to alternative proteins may only become clear from the results of a project. Many fundamental research projects may ultimately have applied relevance. • Not all projects with relevance are described in language (in the project title) that makes this obvious to the reader. • Relevant research may occur under the umbrella of larger research grants, in which case the relevant aspect of the research may not be identified.
Reported currency	• All currencies were reported in Euros except where otherwise mentioned. Currency conversions were performed using the average annual exchange rate for the given year of the award, or for figures not specific to a given year, the 2025 rate.