Design and development of
REAlistic food
Models with well-characterised micro- and macro-structure and composition

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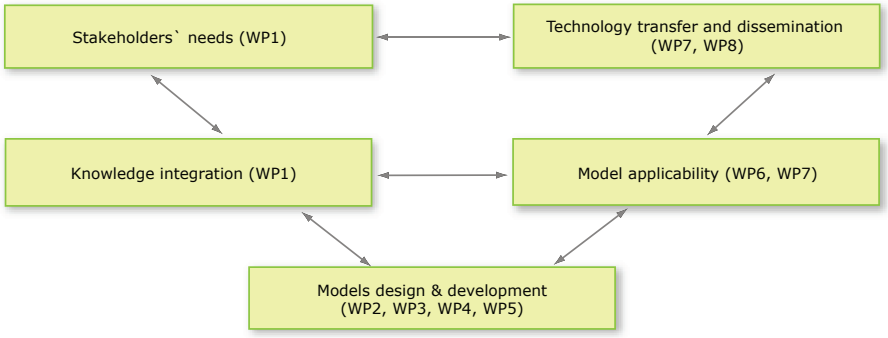
- DREAM – Design and development of REAlistic food Models with well-characterised micro- and macro-structure and composition, is an EU-funded Research & Technology Development Project.
- Project is lead by the INRA (Institut National de la Recherche Agronomique), France.
- The DREAM is trans-disciplinary project that involves two multinationals and nine countries.

The overall goal of DREAM is to develop realistic, physical and mathematical food models to be used as tools that can be exploited across all major food categories with the purpose to facilitate development of common approaches to risk assessment and nutritional quality for food research and industry.

These models will enhance knowledge on process-structure-property relationships and facilitate the creation of food matrix with functional and nutritional properties based on tailored microstructure from molecular to macroscopic level.

Methodology

The concept areas addressed by the project objectives is developped in a series of workpackages organised in a sort of V-cycle strategy.



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From Model Foods to Food Models

CONSORTIUM
INRA - Institut National de la Recherche Agronomique; France

ADRIA - ADRIA Développement; France

Campden BRI - Campden BRI; United Kingdom

CC HU - Campden BRI Magyarország Nonprofit Kft; Hungary

CNRS - Centre National de la Recherche Scientifique; France

CNR-ISPA - Consiglio Nazionale delle Ricerche; Italy

IT - INRA Transfert; France

IRTA - Institut de Recerca y Tecnologia Agroalimentàries; Spain

ACTILAIT - Technical Institute for Dairy Products; France

IFR - Institute of Food Research; United Kingdom

KEKI - Central Food Research Institue; Hungary

Teagasc - Agriculture and Food Development Authority; Ireland

TIFN - Top Institute Food and Nutrition; The Netherlands

SOREDAB - Société de recherches et de développement alimentaire Bongrain; France

UB - United Biscuits (UK) Limited; United Kingdom

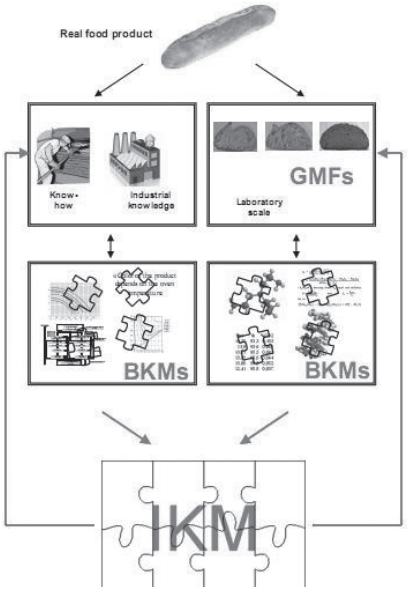
UL - University of Ljubljana; Slovenia

VTT - Technical Research Centre of Finland; Finland

WUR - Wageningen University; The Netherlands

Generic Model Foods - GMFs

GMFs are realistic physical models in which several parameters can be varied, leading to a series of well defined samples for each given type of foods; GMF fabrication protocols will be established; GMFs' structure and chemical composition will be determined and relationships between structure and chemical composition and functional properties will be characterized.



Basic Knowledge Models - GMFs

BKMs are elementary food models describing specific aspects of GMFs, through heuristic or mathematical approaches; for example, BKMs describe the role played by temperature, pressure, chemical composition, etc. in a GMF's structure and resulting material properties.

Integrated Knowledge Models - IKMs

IKMs are dynamic networks - software systems - integrating the operating rules of BKMs, technical expert knowledge, food properties and food processing data from the GMFs. Results from initial experiments and simulations will be used to improve IKMs' mathematical models to reveal key parameters and material behavior and help refine GMFs: this iterative approach will optimize the food model concept prior to the pilot stage.

Expected Results and Impact

This collaborative research project will result in a food model development. It is expected that the project outcome will have a great impact on food science, food modeling and technology transfer.

Models Availablilty

All models developed by the DREAM project will be made available to the stakeholders on a free basis.

SEVENTH FRAMEWORK PROGRAMME

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