

STATE OF THE ART	FUTURE RESEARCH POTENTIAL	IMPACT
<ul style="list-style-type: none"> • Obesity is classified mostly by BMI. • Physical activity and diets is superior to pharmaceuticals, little is known about interactions. • Novel foods and probiotic are developed with limited insight into consumer acceptance and priorities. • Heritability of obesity is 40-70%. Few genes and pathways are identified. • Little insight into the social and historical conditions of the obesity epidemic. • Few anti-obesity drugs are available, and limited efficacy or adverse effects makes many candidates fail. • Gastric bypass surgery works, however with inability to predicting response vs. non-response prior to surgery, and limited insight into long term effects. • Facing the dilemma of balancing of responsibility and actions of society and policy makers with and the responsibility and autonomy of the individual. 	<ul style="list-style-type: none"> • Markers of susceptibility obesity-related diseases, refining phenotypic characterization and reclassification of obesity. • Addressing adverse effects and dilemmas in classifying 'high risk' individuals towards implementing a 'tailor-made' approach. • Mapping social and societal factors complicating the healthy lifestyles and develop novel real life interventions and exploring potentials of ICT in optimizing interventions from individual through population level. • Diet composition and dietary recommendations supported by novel food products. • Follow-up of existing ageing European cohort incl. updated phenotyping, social epidemiology data and biological samples • Novel interdisciplinary approaches to addressing the role of the brain in obesity, including gut- brain signalling, response to physical activity, genetic factors and candidate drug targets. • Animal models with high translational potential in terms of genetics, physiology, behaviour, obesity and co-morbidities. 	<ul style="list-style-type: none"> • Sustainable messages on healthy choices and complementary technologies and approaches to support the consumer. • Healthy food products and novel concepts for physical activity which are accepted, attractive and chosen by the consumers. • Early diagnostic and target intervention for individuals prone to develop obesity and related diseases • Ways to avoid stigmatization and counterproductive reactions of regulations, recommendations, and interventions aiming at tackling obesity. • Tailor-made pharmaceutical treatment regimes and novel drugs, with minimal adverse effects. • Platforms for monitoring and predicting obesity, supporting and follow implementation, prevention and treatment actions.

Research Collaborations between the following sciences: anthropology, architects, biology, biochemistry, bioinformatics, behaviour, clinical, cultural, chemistry, communication, diet, ethnology, economical, epigenetics, exercise, ethicists, epidemiology, engineer, humanities, health, food, genetics, history, imaging, law, media, mathematics, molecular, medical technologies, microbiology, nutrition, natural, neurophysiology, organizational, 'omics, political, physiology, psychology, philosophy, pharmacology, sociology, sport, social epidemiology, statisticians, veterinary.

Collaboration with stakeholders: Public and private sector including primary and secondary health and care sector, organizations (incl. schools, workplaces, sports organizations), policy makers, NGO's (incl. consume, citizens, and patients organizations), governmental institutions, food and food ingredients industry, probiotics industry, agricultural industry, fitness industry, diagnostic and pharmaceutical industry, ICT and media industry.

Infrastructures: Advanced human test facilities; Animal models and state of the art animal test facilities; Biobanks; In vivo Imaging technologies and facilities; Facilities for large-scale interventions; Establishing, operating and maintaining large-scale, well described European cohorts; Developing and gathering 'omics data; Advanced technologies for analyses of tissue and cells.

Roadblocks: Structural bottlenecks to scale up research across disciplines, restrictive approval of drugs targeting obesity, Imbalanced financial support for the health and care sector prioritizing surgery and medicine higher than integrated regimes for treatment and prevention.