

Soggetto coordinatore	Istituto di Scienze delle Produzioni Alimentari CNR
Titolo del progetto	Design and development of REAListic food Models with well-characterised micro- and macro-structure and composition
Acronimo	DREAM
Descrizione del progetto	<p>The challenge is being addressed to development of food models that will enhance knowledge on structure – property relationships and facilitate the creation of food matrix with functional and nutritional properties based on tailored microstructure. The integration of experimental and mathematical approaches will help to develop ranges of food models realistic enough to be used by the industry and sufficiently versatile to be used as predictive tools of food behavior. The project covers four categories: fruits and vegetables, meat, dairy, and bakery products. For each of these categories, three types of models will be developed:</p> <ul style="list-style-type: none"> • Generic Model Foods (GMFs), • Basic Knowledge Models (BKMs), and • Integrated Knowledge Models (IKMs). <p>Within working group 4, pathogenic bacteria species will be used to artificially contaminate a food sample in which these species are usually found (DREAM WP6 works on the: i) detection of <i>Bacillus</i> species; ii) PCR-TTGE on dairy products; and iii) implementation of already existing predictive microbiology and food model aided design tools.</p>
TA/SG	TA6-SG11
Riferimento Bando	VII Framework Programme, FAFB
Valore del progetto	€ 395.960,00
	<p>TA di riferimento: TA1, TA3, TA4. TA6 TA6 for CBRNE detection (6.1, 6.2, 6.3, 6.4) TA6.4 Tecnologie microfluidiche accoppiate a nanostrutture molecolari per la detezione di biohazard Capability (detection of intentional contamination of food and environment)</p> <p>DNA, sonde specifiche, Real Time PCR Blaiotta G., Fusco V., Ercolini D., Pepe O., Coppola S. Diversity of <i>Staphylococcus</i> strains based on partial kat (catalase) gene sequences and designs of a PCR RFLP assay for identification and differentiation of coagulase positive species (<i>S. aureus</i>, <i>S. delphini</i>, <i>S. hyicus</i>, <i>S. intermedius</i>, <i>S. pseudintermedius</i>) JOURNAL OF CLINICAL MICROBIOLOGY 2010, 48, 192-201</p>

Publicazioni

Fusco Va, Quero G.M., Morea M., Blaiotta G., Visconti A. Rapid and reliable identification of *Staphylococcus aureus* harbouring the enterotoxin gene cluster (*egc*) and quantitative detection in raw milk by real time PCR. *Journal of Food Microbiology*, 2011, 144, 528 - 537

LC-MS, chimica analitica

Lattanzio V.M.T., Della Gatta S., Godula M., Visconti A Quantitative analysis of mycotoxins in cereal foods by Collision Cell Fragmentation - High Resolution Mass Spectrometry: performances and comparison with triple stage quadrupole detection. *FOOD ADDITIVES AND CONTAMINANTS* 2011, 28, 1424-1437

Lattanzio V.M.T., Della Gatta S., Suman M., Visconti A Development and in-house validation of a robust and sensitive solid phase extraction - LC-MS/MS method for the quantitative determination of aflatoxins B1, B2, G1, G2, ochratoxin A, deoxynivalenol, zearalenone, T-2 and HT-2 toxins in cereal based foods. *RAPID COMMUNICATIONS IN MASS SPECTROMETRY* 2011, 25:1869-1880.

Lattanzio V.M.T., Solfrizzo M., De Girolamo A., Chulze S.N., Torres A.M., Visconti A. LC-MS/MS characterization of the urinary excretion profile of the mycotoxin deoxynivalenol in human and rat . *JOURNAL OF CHROMATOGRAPHY B* 2011, .: 879, 707- 715

Monaci L., De Angelis E., Visconti A Determination of deoxynivalenol, T-2 and HT-2 toxins in a bread model food by liquid chromatography - high resolution - Orbitrap - Mass Spectrometry equipped with a high-energy collision dissociation cell *Journal of Chromatography A*, 2011, 1218, 8646-8654.

Solfrizzo M., Gambacorta L., Lattanzio V.M.T., Powers S., Visconti A. Simultaneous LC-MS/MS determination of aflatoxin M1, ochratoxin A, deoxynivalenol, de-epoxydeoxynivalenol, \pm and 2 -zearalenols and fumonisin B1 in urine as a multi-biomarker method to assess exposure to mycotoxins. *ANALYTICAL AND BIOANALYTICAL CHEMISTRY* 2011, 401, 2831-2841

Immunoassays, Lateral flow, protein chips, Quantum dots, nanodispositivi

Lippolis V., Pascale M., Valenzano S., Pluchinotta V., Baumgartner S., Krska R., Visconti A. A rapid fluorescence polarization immunoassay for the determination of T-2 and HT-2 toxins in wheat *ANALYTICAL AND BIOANALYTICAL CHEMISTRY* 2011, 401: 2561- 2571

Cimaglia F., Aliverti A., Chiesa M., Poltronieri P, De Lorenzis E., Santino A., Sechi L.A. Quantum dot nanoparticle-based lateral flow assay for rapid detection of *Mycobacterium* species using anti- FprA antibodies. *Nanotechnology Development*, (2012), Vol 2, No 1:e5.

De Girolamo A., McKeague M., Miller J.D., De Rosa M.C., Visconti A.

	<p>Determination of ochratoxin A in wheat after clean-up through a DNA aptamer-based solid phase extraction column. FOOD CHEMISTRY, 2011, 127, 1378-1384</p> <p>Poltronieri P, Cimaglia F, Santino A, De Blasi MD, Krizkova-Kudlikova I, Liu S, Wang Y-U, Wang Y. Protein chips for detection of mite allergens using Kunitz-type protease inhibitors. Biotechnol. J., 2010, vol 5, n. 6, 582 -587.</p> <p>Poltronieri P, Shaoyang Liu, Cimaglia F., Santino A., Wang Y. Characterization of Kunitz-type inhibitor B1 performance using protein chips and AFM. Sensor Actuators B, Chemical, 2012, Available online 2012 doi:10.1016/j.snb.2012.04.013</p> <p>Ragona M., Mazzocchi M., Zanolli A., Alldrick A.J., Solfrizzo M., van Egmond H.P. Testing a toolbox for impact assessment of food safety regulations: maximum levels for T-2 and HT-2 toxins in the EU. QUALITY ASSURANCE AND SAFETY OF CROPS & FOODS 2011 3, 12-23</p> <p>Solfrizzo M., De Girolamo A., Gambacorta L., Visconti A., van Egmond H.P., Stroka J. Determination of fumonisins B1 and B2 in corn based foods for infants and young children by LC with Immunoaffinity column clean-up: interlaboratory validation study. JOURNAL OF AOAC INTERNATIONAL 2011, 94, 900-908</p>
<p>Curriculum</p>	