Post-doctoral position at INRA (France): Metabolomics for identification of new biomarkers of dietary intake and nutritional exposure

An 18-month post-doctoral position is available at INRA, in the Research Centre of Clermont-Ferrand-Theix, France. The position has no nationality restriction.

The research program aims at identifying new biomarkers of food intake and nutritional exposures for epidemiology and nutrition research. Comprehensive description of dietary intakes and nutritional status of individuals is essential to study the complex relationships between genotype, environment, diet and health in large-scale cohorts and intervention studies. However the questionnaire-based methods and the limited set of validated biomarkers available today for dietary assessment do not provide the accuracy and coverage required. Metabolomics has recently been demonstrated as an effective approach for discovery of new biomarkers of intake for a large range of nutrients, foods and dietary patterns. The laboratory was a pioneer in this approach and has acquired strong expertise in the field. The candidate will contribute to the ANR funded project Phenomenep (Phenotyping using Metabolomics for Nutritional Epidemiology) in which tools and methods for analysis and interpretation of the part of metabolome derived from the digestion and metabolism of food components (the "Food metabolome") have been developed. He/She will be involved in the interpretation of high-accuracy mass spectrometry datasets derived from controlled intervention studies and from the SUVIMAX2 cohort to identify new biomarkers for selected dietary patterns as well as for a large range of plant foods. The activities will include statistical analysis, mass spectra interpretation, search for identification hypotheses through mining of public and in-house databases, validation/elucidation of chemical structures using relevant analytical approaches, and qualification of the candidate biomarkers regarding usefulness, specificity and robustness. There is considerable opportunity for creative research in this emerging field and the candidate will be encouraged to develop innovative research directions for his/her future career.

The work will be carried out at INRA, a French public research Institute (http://www.clermont.inra.fr/clermont_eng), in the Human Nutrition Laboratory (http://www4.clermont.inra.fr/unh_eng/) gathering around 150 persons studying the effects of the diet on health and disease prevention. He/She will be welcomed in the Team "Metabolic Phenotypes, Diet and Biomarkers" who comprises 8 persons (researchers, engineers, post-doc and PhD students). The Unit has an advanced mass spectrometry facility for metabolism studies (metabolomics and fluxomics). It is equipped with state-of-the-art equipments including three mass spectrometers dedicated to metabolomics (LC-QToF Waters Micro, LC-NMR/Tof Bruker Metabolic Profiler, LTQ-Orbitrap Thermo, http://www5.clermont.inra.fr/plateforme_exploration_metabolisme_eng). The post-doctoral fellow will work in an interdisciplinary environment, with researchers having expertise in various fields of nutrition, with epidemiologists, as well as with analysts, statisticians and bioinformaticians. He/She will be encouraged to contribute to national and international network activities, especially in the NuGO association.

Candidate profile:
PhD in analytical chemistry, biochemistry, biology or nutrition and 0-3 years of relevant post-doctoral experience.
Preference will be given to candidates with research experience in nutritional metabolomics, or pharmacokinetic/ADME studies in humans or animals, or in mass spectrometry analysis and structure elucidation of small molecules.
Practical experience in multivariate statistics and database mining is required.
Knowledge on phytochemicals will be appreciated.
Excellent communication and reporting skills are expected, as well as a pro-active attitude, creative and multitasking.

Start date: May 2012 (negotiable)
Annual gross salary: 26400 euros.

Qualified applicants are invited to send their application before the 28th Feb, 2012 as a single pdf file comprising a cover letter, Curriculum Vitae, a publication list, and contact details or recommendation letters from at least two referees to:
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