

## SESSION 1 : MILK AND ORIGINS: MILK OF MAN, MILK OF THE GODS

Presided by Jean-Denis Vigne

### Lactase Persistency in Central Asia: a phenotype-genotype study

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The activity (expression) of lactase, the intestinal enzyme responsible for the digestion of lactose in milk declines rapidly after weaning in mammals. However, in humans, some individuals maintain the ability to digest milk and other dairy products into adulthood. These individuals with the 'lactase persistence' trait are found at very high frequency in populations that have traditionally the habit of drinking fresh milk.

For example, [the frequency of lactase persistence is very high in northern European populations \(>90% in Swedes\) and pastoral East-African](#) whereas it is extremely low in China (1%). The incidence of lactase persistence remains unknown in many areas worldwide.

In the framework of a global project on genetic diversity in Central Asia, we have tested 180 individuals from 2 populations: 80 Kazakh traditionally herders and 100 Uzbek-Tajik traditionally farmers. Each individual was phenotyped for the lactase persistency trait with three criteria: after ingestion of 50g Lactose we used breath hydrogen method, glycaemia follow-up, perceived symptoms. Blood samples were taken for genotyping: C/T-13910, and several surrounding SNPs. We will present the results of this work: [the frequency of LP in Central Asia is app 30% with only a small difference between traditionally herders' populations and farmers' populations](#). The mutation at the basis of the lactase persistence trait in Central Asians is [the same as the one in Europe](#). Using SNP variation around the causal mutation, we have also dated the age of expansion of the mutation as well as estimated the selection coefficient associated with the LP mutation.

This research was realized with: P. Pasquet, L. Brazier, T. Hegay, M. Veuille, M. Georges, L. Quintana-Murci, L. Segurel, F. Austerlitz.

#### biographie

Evelyne Heyer est professeur au Muséum national d'Histoire Naturelle. Elle est Directeur Adjoint du département Hommes, Natures, Sociétés et dirige une équipe de recherche en génétique des populations humaines au Musée de l'Homme. Docteur depuis 1991, elle a commencé sa recherche au Québec (professeur à l'UQAM) et est revenue en France en 1997 où elle intègre le CNRS. Le CNRS la distingue de la médaille de Bronze en 1999 et l'encourage à créer son équipe de génétique des populations humaines en 2003 alors qu'elle est devenue professeur des Universités à Paris 7. En 2005 elle devient professeur au Muséum national d'Histoire Naturelle et s'implique fortement dans le projet de rénovation du Musée de l'Homme. En 2008 elle devient Editeur en Chef de la revue américaine «Human Biology».

