

Gènes et Environnement/GEN-6

## Evidence of a causal association between C-reactive protein and adiposity in women.

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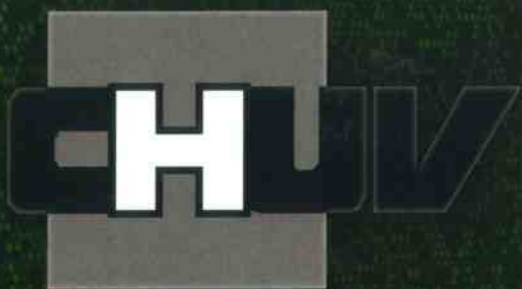
**Context:** The link between C-reactive protein (CRP) and adiposity deserves to be further explored considering the diabetogenic role of CRP.

**Objective:** We explored the potential causal role of CRP on adiposity markers.

**Design:** We used a Mendelian randomization approach with the *CRP* and *LEPR* genes as instrumental variables in a cross-sectional Caucasian population-based study comprising 2526 men and 2836 women. Adiposity was measured using body mass index (BMI), fat and lean mass estimated by bioelectrical impedance, and waist circumference.

**Results:** Log-transformed CRP explained by the *rs7553007* SNP tagging the *CRP* gene was significantly associated with BMI (regression coefficient: 1.22 [0.18;2.25],  $P=0.02$ ) and fat mass (2.67 [0.65;4.68],  $P=0.01$ ), but not with lean mass in women, whereas no association was found in men. Log-transformed *CRP* explained by the *rs1805096* *LEPR* SNP, located within exon 20, tended to be associated with BMI (0.70[-0.17;1.57],  $P=0.11$ ) and fat mass (1.35[-0.32;3.02],  $P=0.11$ ) in women, but not in men. The combined *CRP-LEPR* instrument explained 2.24% and 0.77% of CRP variance in women and in men, respectively. Log-transformed CRP explained by this combined instrument was significantly associated with BMI (0.98 [0.32 ;1.63],  $P=0.004$ ), fat mass (2.07 [0.79 ;3.34],  $P=0.001$ ) and waist (2.09 [0.39 ;3.78],  $P=0.01$ ) in women, but not in men.

**Conclusion:** Our results suggest that CRP is causally positively related to BMI in women, and that this is mainly due to fat mass. The similar results observed for the *LEPR* gene suggest that leptin may play a key role in the association between CRP and adiposity.



# Research Day

January 29, 2009  
César Roux Auditorium

## **Genes** *and* **Diseases**

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et de médecine

# ***Table des matières***

Message du Vice-Doyen de la Recherche  
de la Faculté de Biologie et de Médecine

Programme

Abstracts

EHU	Environnement Humain	4
ENA	Environnement Naturel	27
GEN	Gènes et Environnement	31
IMI	Immunité et Infection	59
MCV	Métabolisme et Cardiovasculaire	97
NEU	Neurosciences et Psyché	139
ODE	Oncologie et Développement	165
THE	Procédures Thérapeutiques	197
Index des auteurs		215

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Photo : DNA microarray image of an RNA expression profiling experiment provided by  
Manuela Weier and Henrik Kaessmann of the Centre Intégré de Génétique - CIG  
and Jérôme Thomas of the Lausanne DNA Array Facility, Centre Intégré de Génétique - CIG



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