A variant of the gene GFI1 predisposes to a subtype of blood cancer

January 18 2010

(PhysOrg.com) -- A large international research group led by Dr. Tarik Möröy, a researcher at the Institut de recherches cliniques de Montréal (IRCM), has discovered that a variant of the gene "Growth Factor Independence 1" (GFI1) predisposes humans to develop acute myeloid leukemia (AML), a certain subtype of blood cancer.

This study was coordinated by Dr. Möröy at the IRCM in collaboration with multiple international study groups located throughout Germany, the Netherlands and the United States. This new finding has been prepublished online in *Blood*, the Journal of the American Society of Hematology. Dr. Cyrus Khandanpour, medical doctor and postdoctoral fellow in Dr. Möröy's group at the IRCM, is the first author of the study.

The study describes and validates the association between a variant form of GFI1 (called GFI136N) and AML in two large patient cohorts (comprising about 1,600 patients from Germany and the Netherlands) and the respective controls. The association between GFI136N and other already established markers in the field of AML was examined in collaboration with several study clinics in Rotterdam, Nijmegen (Netherlands), Dresden, Essen, Munich (Germany), Columbus and City of Hope (USA) showing that GFI136N is a new independent marker for predisposition to AML. “This extensive collaboration effort resulted in one of the largest association studies published in the field of AML,” pointed out Dr. Möröy.

The researchers performed different examinations showing that

GFI136N behaves differently than its more common form. “A possible explanation for the predisposition to AML this variant leads to,” mentioned Dr. Khandanpour, “is that it cannot interact with all the proteins the more common GFI1 usually interacts with. One reason for this is a different localization of this variant within the cell, but different functions of the variant at the molecular level may also account for this behaviour.”

Carriers of this variant have a 60% higher risk of developing AML. This study brings new insight on the development of AML and suggests also that GFI136N might be used in the future as a new biomarker for evaluating prognosis in AML patients.

This work was supported in part by a grant from CRS-The Cancer Research Society (Canada) to Dr. Möröy and by the COLE Foundation, which granted a fellowship to Dr. Khandanpour.

More information: *Blood* First Edition Paper, prepublished online January 15, 2010; DOI:10.1182/blood-2009-08-239822

Provided by University of Montreal