

# Thèse : Trophoblastic biomarkers of implantation and pregnancy: glycoforms of hCG

<https://www.dev.espci.fr/fr/espci-paris-psl/emploi/2015/these-trophoblastic-biomarkers-of-implantation-and>

## Laboratoire d'accueil :

Laboratoire de Sciences Analytiques, Bioanalytiques et Miniaturisation (LSABM), UMR 8231 Chimie, Biologie et Innovation (CBI), ESPCI ParisTech, 10 rue Vauquelin, 75005, Paris, France

## Ecole doctorale :

ED 388 (Chimie Physique et Chimie Analytique de Paris Centre)

## Sujet de thèse :

Trophoblastic biomarkers of implantation and pregnancy : glycoforms of hCG

## Description du sujet :

Our general goal is to improve knowledge of human placental development and function, and to improve early screening (biomarkers, imaging) and care of the main diseases of pregnancy associated with placental dysfunction. Human Chorionic Gonadotropin (hCG) is a complex glycoprotein hormone whose bioactivity is highly dependent on the composition of its carbohydrate moiety. hCG is produced by the blastocyst and after implantation, constitutes the first trophoblast signal detected in the maternal blood and is used to diagnose pregnancy. hCG and free beta-hCG are detected in the maternal blood from the first week of pregnancy, with a peak level at 12 weeks followed by a decrease until term; alpha-hCG levels increase progressively throughout pregnancy. Maintenance of pregnancy during the first trimester depends on the synthesis of hCG, which prevents regression of the corpus luteum allowing the maintenance of ovarian progesterone secretion. In addition to its well-established endocrine role, hCG increases its own synthesis in an autocrine fashion. The aim of the present study is : 1) To develop analytical methods at miniaturized scale for the identification and quantification of hCG glycoforms in complex biological samples 2) To characterize hCG glycoforms secreted by the blastocyst, the villous and the extravillous trophoblast in physiological conditions and in pathological conditions associated with foetal growth restriction 3) To develop new specific tools to detect hCG glycoforms in small volume of biological fluid for prognostic and diagnostic of implantation, miscarriages, placental dysfunctions, and foetal growth restriction.

## Compétences requises :

Le candidat doit être titulaire d'un master en chimie ou en biochimie, en ayant des compétences en chimie analytique.

## Contact

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Candidatures (lettre de motivation et CV) à transmettre par courrier électronique.

## Accès

Métro ligne 7 (Place Monge/Censier Daubenton) RER B (Luxembourg) Bus 21, 27 & 47 3 stations Vélib proches