# Ignatia B. Van den Veyver, M.D.

## Department or Service

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## Specialty
Maternal Fetal Medicine

## Medical School
University of Antwerp, Doctor of Medicine, 1986

## Residency
University of Antwerp Affiliated Hospitals, Obstetrics & Gynecology, 1990
University of Pretoria, Obstetrics & Gynecology, 1991

## Fellowship

Baylor College of Medicine, Maternal Fetal Medicine, 1993
Baylor College of Medicine, Genetics, 1996

# From Dr. Van den Veyver

Our research focuses on genetics and epigenetics of reproductive disorders; imprinting; genetics of Aicardi syndrome; prenatal gene-environment interactions and prenatal genetics.

- In our first project, we study complete hydatidiform moles (CHM), an abnormal development of the human placenta. Most CHM have a genome that is inherited from the father only, suggesting that imbalance of imprinted gene expression causes CHM. Imprinted genes are genes for which only one of its two copies is active, and which copy depends on whether it was inherited from the mother or father. Our research focuses on understanding the cause of a much rarer form of recurrent hydaditidoform moles that have a normally inherited genome but still show generalized defects of imprinting. Mutations in two genes, *NLRP7* or *KHDC3L*, have been found in women with these abnormal pregnancies. We currently study embryonic stem cell culture models to characterize the function of *NLRP7* and *KHDC3L* and are also characterizing the role of a homologous gene, *Nlrp2*, in mice. This will help us better understand how imprinting is established in the germline.
- In the second project, we investigate in mice the mechanisms by which maternal diet or an adverse prenatal environment affect disease risk in offspring. We found that maternal low protein diet alters muscle growth and expression of cohesins in liver of offspring and are currently studying how this alters the behavior of offspring. We are also studying in genetic mouse models for autism whether adverse prenatal exposures, such as inflammation, stress and certain antidepressants worsen the phenotype in offspring and by which mechanisms. We hope that this may help us develop measures to reduce the consequences of these exposures.
- My lab also performs research to find the cause of Aicardi syndrome (AIC) a severe X-linked disorder that only affects girls. Children with AIC have developmental defects of eyes and brain, severe seizures and mental retardation. We are performing high-throughput sequencing and other genetic studies to search for the mutation that causes AIC. We also perform detailed clinical phenotyping in collaboration with other investigators at BCM (Dr. V. Reid Sutton and Dr. Richard A. Lewis).
- Finally, I am also interested in the clinical application of new technologies for prenatal diagnosis of genetic disorders and chromosomal abnormalities in the fetus and how such new methods are integrated in the clinical care of pregnant women. We are particualry interested in new non-invasive methods for prenatal genetic screening and diagnosis and in application of new technologies to improve the prenatal diagnosis of the cause of birth defects found in the fetus.

# Professional Organizations

- American Congress of Obstetricians and Gynecology
  Associate Member
- American Society of Human Genetics
  Member
- International Society for Prenatal Diagnosis
  President Elect 2014-2016
- Society for Maternal-Fetal Medicine
  Member
- American College of Medical Genetics
  Fellow

# Selected Publications


1. Eble TN, Sutton VR, Sangi-Haghpeykar H, Wang X, Jin W, Lewis RA, Fang P, **Van den Veyver IB**. "Non-random X chromosome inactivation in Aicardi syndrome." *Human Genetics* 2009 March;125(2):211-6. PMID: 19116729
2. Mahadevan SK, Wen S, Balasa A, Fruhman G, Mateus J, Wagner A, Al-Hussaini T, **Van den Veyver IB**. "No evidence for mutations in NLRP7 and KHDC3L in women with androgenetic hydatidiform moles." *Prenatal Diagnosis* 2013;33(13):1242-7. PMID: 24105752.
3. Mahadevan S, Wen S, Wan Y-W, Peng H-H, Otta S, Liu Z, Iacovino M, Mahen EM, Kyba M, Sadikovic B, **Van den Veyver IB**. "NLRP7 affects trophoblast lineage differentiation, binds to overexpressed YY1 and alters CpG methylation." *Human Molecular Genetics* 2014;23(3):706-16. PMID: 24105472.
4. Emrick LT, Murphy L, Shamshirsaz AA, Ruano R, Cassady CI, Liu L, Chang F, Sutton VR, Li M, **Van den Veyver IB.** "Prenatal diagnosis of CLOVES syndrome confirmed by detection of a mosaic PIK3CA mutation in cultured amniocytes." *American Journal of Medicine in Genetics Part A*. 2014 July 14 PMID: 25044986
5. Bui TH, Raymond FL, **Van den Veyver IB**. "Current controversies in prenatal diagnosis 2: should incidental findings arising from prenatal testing always be reported to patients?" *Prenatal diagnosis*. 2014;34(1):12-7. PMID: 24214820.
6. Murry JB, Santos XM, Wang X, Wan YW, **Van den Veyver IB**, Dietrich JE. "A genome-wide screen for copy number alterations in an adolescent pilot cohort with mullerian anomalies". *Fertility and sterility*. 2015 Feb;103(2):487-93. PMID: 25492685