



CURRICULUM VITAE

Name: Fatima Crispi

Place and date of birth: Barcelona, 16th February 1976.

National ID number: 36517589-Y

Academic degrees

2010: Master degree in statistics 'Metodología de la investigación: diseño y estadística en ciencias de la salud' at Universitat Autònoma, Spain.

2009: PhD thesis entitled 'Fetal programming of cardiovascular dysfunction in intrauterine growth restriction' (cum laude) at Universitat de Barcelona, Spain.

2005: Obstetrics and Gynecology at Universitat Autònoma de Barcelona (Hospital Vall Hebrón de Barcelona), Spain.

2001: Bachelor in Medicine at Universitat Autònoma de Barcelona, Spain.

Professional activity

2011-actual: Consultant in Maternal-Fetal Medicine at BCNatal (Hospital Clinic and Hospital Sant Joan de Déu), Barcelona.

2009-actual: Senior Researcher and Head of the Fetal Cardiovascular Programming research line at Fetal i+D Fetal Medicine Research Center, IDIBAPS, Barcelona. Researcher at the Centro de Investigación Biomédica en Red de Enfermedades Raras (CIBER-ER) (CB06/07/0027) and at the Consolidated research Group 'Fisiopatología de la Reproducción Humana' (2009 SGR1099) recognized by Agència de Gestió d'Ajuts Universitaris i de Recerca (AGAUR) de la Generalitat de Catalunya, Spain.

2015-actual: Associate Professor at Universitat de Barcelona (Medicine).

2014-actual: Academic Editor at PLOS ONE.

2006-2011: Associate consultant in Maternal-Fetal Medicine at Hospital Clinic, Barcelona, Spain.

2006-2009: Researcher at Fetal i+D Fetal Medicine Research Center, IDIBAPS, Barcelona. Rio Hortega grant (CM07/00076) from the Instituto Carlos III, Spain.

2005-2006: Consultant in Obstetrics at Hospital Vall Hebron, Barcelona, Spain.

Scientific publications

1. Llurba E, Crispi F, Verlohren S. Update on the Pathophysiological Implications and Clinical Role of Angiogenic Factors in Pregnancy. *Fetal Diagn Ther*. 2015 Feb 3
2. Migliorelli F, Martínez JM, Gómez O, Bennasar M, Crispi F, García L, Castañón M, Gratacós E. Successful Fetoscopic Surgery to Release a Complete Obstruction of the Urethral Meatus in a Case of Congenital Megalourethra. *Fetal Diagn Ther*. 2015 Jan 21.
3. Torre I, González-Tendero A, García-Cañadilla P, Crispi F, García-García F, Bijns B, Iruretagoyena I, Dopazo J, Amat-Roldán I, Gratacós E. Permanent cardiac sarcomere changes in a rabbit model of intrauterine growth restriction. *PLoS One*. 2014 Nov 17;9(11):e113067.
4. Crovetto F, Figueras F, Triunfo S, Crispi F, Rodríguez-Sureda V, Domínguez C, Llurba E, Gratacós E. First trimester screening for early and late preeclampsia based on maternal characteristics, biophysical parameters, and angiogenic factors. *Prenat Diagn*. 2015 Feb;35(2):183-91.
5. Crispi F, Bijns B, Sepulveda-Swatson E, Cruz-Lemini M, Rojas-Benavente J, Gonzalez-Tendero A, Garcia-Posada R, Rodriguez-Lopez M, Demicheva E, Sitges M, Gratacós E. Post-Systolic Shortening by Myocardial Deformation Imaging as a Sign of Cardiac Adaptation to Pressure Overload in Fetal Growth Restriction. *Circ Cardiovasc Imaging*. 2014 Sep;7:781-7
6. Garcia-Canadilla P, Rudenick PA, Crispi F, Cruz-Lemini M, Palau G, Camara O, Gratacos E, Bijns BH. A computational model of the fetal circulation to quantify blood redistribution in intrauterine growth restriction. *PLoS Comput Biol*. 2014 Jun 12;10(6):e1003667.
7. Lobmaier SM, Figueras F, Mercadé I, Crovetto F, Peguero A, Parra-Saavedra M, Ortiz JU, Crispi F, Gratacós E. Levels of Maternal Serum Angiogenic Factors in Third-Trimester Normal Pregnancies: Reference Ranges, Influence of Maternal and Pregnancy Factors and Fetoplacental Doppler Indices. *Fetal Diagn Ther*. 2014;36(1):38-43.
8. Chambers AE, Mills WE, Mercadé I, Crovetto F, Crispi F, Bodi LR, Pugia M, Mira A, Lasalvia L, Banerjee S, Casals E, Gratacos E. The utility of circulating LHCGR as a predictor of Down's syndrome in early pregnancy. *BMC Pregnancy Childbirth*. 2014 Jun 6;14(1):197. PMID:24906955
9. Wang K, Ahmad S, Cai M, Rennie J, Fujisawa T, Crispi F, Baily J, Miller MR, Cudmore M, Hadoke PW, Wang R, Gratacós E, Buhimschi IA, Buhimschi CS, Ahmed A. Response to Letter Regarding Article, "Dysregulation of Hydrogen Sulfide (H₂S) Producing Enzyme Cystathionine γ -lyase (CSE) Contributes to Maternal Hypertension and Placental Abnormalities in Preeclampsia". *Circulation*. 2014 Jun 3;129(22):e517-8.
10. Garcia-Canadilla P, Gonzalez-Tendero A, Iruretagoyena I, Crispi F, Torre I, Amat-Roldan I, Bijns BH, Gratacos E. Automated cardiac sarcomere analysis from second harmonic generation images. *J Biomed Opt*. 2014 May 1;19(5):56010.
11. Luque A, Farwati A, Crovetto F, Crispi F, Figueras F, Gratacós E, Aran JM. Usefulness of circulating microRNAs for the prediction of early preeclampsia at first-trimester of pregnancy. *Sci Rep*. 2014 May 8;4:4882.
12. Crovetto F, Figueras F, Triunfo S, Crispi F, Rodríguez-Sureda V, Peguero A, Domínguez C, Gratacos E. Added Value of Angiogenic Factors for the Prediction of Early and Late Preeclampsia in the First Trimester of Pregnancy. *Fetal Diagn Ther*. 2014 Apr 5. [Epub ahead of print] PMID: 24714555
13. Masoller N, Martínez JM, Gómez O, Bennasar M, Crispi F, Sanz M, Egaña-Ugrinovic G, Bartrons J, Puerto B, Gratacós E. Evidence of second trimester changes in head biometry and

- brain perfusion in fetuses with congenital heart disease. *Ultrasound Obstet Gynecol.* 2014 Mar 29. doi: 10.1002/uog.13373.
14. Lobmaier SM, Cruz-Lemini M, Valenzuela-Alcaraz B, Ortiz JU, Martinez JM, Gratacos E, Crispi F. Influence of equipment and settings on myocardial performance index repeatability and definition of settings to achieve optimal reproducibility. *Ultrasound Obstet Gynecol.* 2014 Jun;43(6):632-9.
15. Iruretagoyena JI, Gonzalez-Tendero A, Garcia-Canadilla P, Amat-Roldan I, Torre I, Nadal A, Crispi F, Gratacos E. Cardiac dysfunction is associated with altered sarcomere ultrastructure in intrauterine growth restriction. *Am J Obstet Gynecol.* 2014 Jun;210(6):550.e1-7.
16. Crispi F, Cruz-Lemini M, Gratacós E. Reply. *Ultrasound Obstet Gynecol.* 2014 Jan;43(1):109.
17. Cruz-Lemini M, Crispi F, Valenzuela-Alcaraz B, Figueras F, Gómez O, Sitges M, Bijmens B, Gratacós E. A fetal cardiovascular score to predict infant hypertension and arterial remodeling in intrauterine growth restriction. *Am J Obstet Gynecol.* 2014 Jun;210(6):552.e1-552.e22.
18. Scuzzochio E, Munmany M, Garcia L, Meler E, Crispi F, Gratacos E, Figueras F. Prognostic role of maternal neutrophil gelatinase-associated lipocalin in women with severe early-onset preeclampsia. *Fetal Diagn Ther.* 2014;35(2):127-32
19. Sanz-Cortés M, Carbajo RJ, Crispi F, Figueras F, Pineda-Lucena A, Gratacós E. Metabolomic profile of umbilical cord blood plasma from early and late intrauterine growth restricted (IUGR) neonates with and without signs of brain vasodilation. *PLoS One.* 2013 Dec 2;8(12):e80121.
20. Stergiotou I, Crispi F, Valenzuela-Alcaraz B, Cruz-Lemini M, Bijmens B, Gratacos E. Aortic and carotid intima-media thickness in term small-for-gestational-age newborns and relationship with prenatal signs of severity. *Ultrasound Obstet Gynecol.* 2014 Jun;43(6):625-31.
21. Lobmaier SM, Figueras F, Mercade I, Perello M, Peguero A, Crovetto F, Ortiz JU, Crispi F, Gratacós E. Angiogenic factors vs Doppler surveillance in the prediction of adverse outcome among late-pregnancy small-for-gestational-age fetuses. *Ultrasound Obstet Gynecol.* 2014 May;43(5):533-40.
22. Gonzalez-Tendero A, Torre I, Garcia-Canadilla P, Crispi F, García-García F, Dopazo J, Bijmens B, Gratacós E. Intrauterine growth restriction is associated with cardiac ultrastructural and gene expression changes related to the energetic metabolism in a rabbit model. *Am J Physiol Heart Circ Physiol.* 2013 Dec;305(12):H1752-60
23. Valenzuela-Alcaraz B, Crispi F, Bijmens B, Cruz-Lemini M, Creus M, Sitges M, Bartrons J, Civico S, Balasch J, Gratacós E. Assisted Reproductive Technologies are Associated with Cardiovascular Remodeling in Utero that Persists Postnatally. *Circulation.* 2013 Sep 24;128(13):1442-50.
24. Demicheva E, Crispi F. Long-Term Follow-Up of Intrauterine Growth Restriction: Cardiovascular Disorders. 2013 Aug 14. [Epub ahead of print]
25. Stergiotou I, Crispi F, Valenzuela-Alcaraz B, Bijmens B, Gratacos E. Patterns Of Maternal Vascular Remodeling And Responsiveness In Early Versus Late Onset Preeclampsia. *Am J Obstet Gynecol.* 2013 Dec;209(6):558.e1-558.e14.
26. Crovetto F, Crispi F, Scuzzochio E, Mercade I, Meler E, Figueras F, Gratacos E. First-trimester screening for early and late small-for-gestational-age neonates using maternal serum biochemistry, blood pressure and uterine artery Doppler. *Ultrasound Obstet Gynecol.* 2014 Jan;43(1):34-40.
27. Gómez O, Martínez J, Olivella A, Bannasar M, Crispi F, Masoller N, Bartrons J, Puerto B, Gratacós E. Isolated ventricular septal defects in the era of advanced fetal echocardiography: risk of chromosomal anomalies and spontaneous closure rate from diagnosis to the first year of life. *Ultrasound Obstet Gynecol.* 2014 Jan;43(1):65-71
28. Wang K, Ahmad S, Cai M, Rennie J, Fujisawa T, Crispi F, Baily J, Miller MR, Cudmore M,

- Hadoke PW, Wang R, Gratacós E, Buhimschi IA, Buhimschi CS, Ahmed A. Dysregulation of hydrogen sulfide producing enzyme cystathionine γ -lyase contributes to maternal hypertension and placental abnormalities in preeclampsia. *Circulation*. 2013 Jun 25;127(25):2514-22.
29. Cruz-Lemini M, Crispi F, Valenzuela-Alcaraz B, Figueras F, Sitges M, Gómez O, Bijmens B, Gratacós E. Value of annular M-mode displacement versus tissue Doppler velocities to assess cardiac function in intrauterine growth restriction. *Ultrasound Obstet Gynecol*. 2013 Aug;42(2):175-81
30. Scazzocchio E, Figueras F, Crispi F, Meler E, Masoller N, Mula R, Gratacós E. Performance of a first-trimester screening of preeclampsia in a routine care low-risk setting. *Am J Obstet Gynecol*. 2013 Mar;208(3):203.e1-203.e10.
31. Martínez JM, Prat J, Gómez O, Crispi F, Bennasar M, Puerto B, Castañón M, Gratacós E. Decompression through Tracheobronchial Endoscopy of Bronchial Atresia Presenting as Massive Pulmonary Tumor: A New Indication for Fetoscopic Surgery. *Fetal Diagn Ther*. 2013;33(1):69-74.
32. Cruz-Lemini M, Crispi F, Van Mieghem T, Pedraza D, Cruz-Martínez R, Acosta-Rojas R, Figueras F, Parra-Cordero M, Deprest J, Gratacós E. Risk of perinatal death in early-onset intrauterine growth restriction according to gestational age and cardiovascular Doppler indices: a multicenter study. *Fetal Diagn Ther*. 2012;32(1-2):116-22.
33. Cruz-Martínez R, Figueras F, Bennasar M, García-Posadas R, Crispi F, Hernández-Andrade E, Gratacós E. Normal reference ranges from 11 to 41 weeks' gestation of fetal left modified myocardial performance index by conventional Doppler with the use of stringent criteria for delimitation of the time periods. *Fetal Diagn Ther*. 2012;32(1-2):79-86.
34. Crispi F, Figueras F, Cruz-Lemini M, Bartrons J, Bijmens B, Gratacós E. Cardiovascular programming in children born small for gestational age and relationship with prenatal signs of severity. *Am J Obstet Gynecol* 2012;207:121.e1-9
35. Bijmens B, Cikes M, Butakoff C, Sitges M, Crispi F. Myocardial motion and deformation - what does it tell us and how does it relate to function? *Fetal Diagn Ther* 2012;32(1-2):5-16.
36. Comas M, Crispi F. Assessment of fetal cardiac function using tissue Doppler techniques. *Fetal Diagn Ther* 2012 2012;32(1-2):30-8.
37. Crispi F, Gratacós E. Fetal cardiac function: technical considerations and potential research and clinical applications. *Fetal Diagn Ther* 2012 2012;32(1-2):47-64.
38. Crispi F, Sepulveda-Swatson E, Cruz-Lemini M, Rojas-Benavente J, Garcia-Posada R, Dominguez JM, Sitges M, Bijmens B, Gratacós E. Feasibility and reproducibility of a standard protocol for 2D-speckle tracking and tissue Doppler based strain and strain-rate analysis of the fetal heart. *Fetal Diagn Ther* 2012;32(1-2):96-108.
39. Comas M, Crispi F, Cruz-Martinez R, Figueras F, Gratacós E. Tissue Doppler echocardiographic markers of cardiac dysfunction in small-for-gestational age fetuses. *Am J Obstet Gynecol*. 2011 Jul;205(1):57.e1-6.
40. Cudmore MJ, Ahmad S, Sissaoui S, Ramma W, Ma B, Fujisawa T, Al-Ani B, Wang K, Cai M, Crispi F, Hewett PW, Gratacós E, Egginton S, Ahmed A. Loss of Akt activity increases circulating soluble endoglin release in preeclampsia: identification of inter-dependency between Akt-1 and heme oxygenase-1. *Eur Heart J*. 2012;33:1150-8.
41. Benavides-Serralde A, Scheier M, Cruz-Martinez R, Crispi F, Figueras F, Gratacós E, Hernandez-Andrade E. Changes in Central and Peripheral Circulation in Intrauterine Growth-Restricted Fetuses at Different Stages of Umbilical Artery Flow Deterioration: New Fetal Cardiac and Brain Parameters. *Gynecol Obstet Invest*. 2011;71(4):274-80.
42. Eixarch E, Hernandez-Andrade E, Crispi F, Illa M, Torre I, Figueras F, Gratacós E. Impact on fetal mortality and cardiovascular Doppler of selective ligation of uteroplacental vessels compared with undernutrition in a rabbit model of intrauterine growth restriction. *Placenta*. 2011;32:304-9.
43. Padilla N, Falcón C, Sanz-Cortés M, Figueras F, Bargallo N, Crispi F, Eixarch E, Arranz A,

- Botet F, Gratacós E. Differential effects of intrauterine growth restriction on brain structure and development in preterm infants: A magnetic resonance imaging study. *Brain Res.* 2011;1382:98-108
44. Cruz-Martinez R, Figueras F, Benavides-Serralde A, Crispi F, Hernandez-Andrade E, Gratacos E. Sequence of changes in myocardial performance index in relation with aortic isthmus and ductus venosus Doppler in fetuses with early-onset intrauterine growth restriction. *Ultrasound Obstet Gynecol.* 2010 Dec 10.
45. Comas M, Crispi F, Gómez O, Puerto B, Figueras F, Gratacós E. Gestational age- and estimated fetal weight-adjusted reference ranges for myocardial tissue Doppler indices at 24-41 weeks' gestation. *Ultrasound Obstet Gynecol.* 2011;37:57-64
46. Cobo T, Palacio M, Eixarch E, Crispi F, Mercadé I, Martínez-Crespo JM, Gratacós E. Clinical and biochemical predictors of very preterm birth in twin-to-twin transfusion syndrome treated by fetoscopy. *Am J Obstet Gynecol.* 2010 Oct 13
47. Valsky DV, Eixarch E, Martinez JM, Crispi F, Gratacós E. Selective intrauterine growth restriction in monochorionic twins: pathophysiology, diagnostic approach and management dilemmas. *Semin Fetal Neonatal Med.* 2010 Dec;15(6):342-8.
48. Crispi F, Figueras F, Bartrons B, Bijmens B, Eixarch E, Le Noble F, Ahmed A, Gratacos E. Fetal growth restriction results in remodeled and less efficient hearts in children. *Circulation* 2010 Jun 8;121(22):2427-36.
49. Comas M, Crispi F, Cruz-Martinez R, Martinez JM, Figueras F, Gratacós E. Usefulness of myocardial tissue Doppler vs conventional echocardiography in the evaluation of cardiac dysfunction in early-onset intrauterine growth restriction. *Am J Obstet Gynecol* 2010;203:45.e1-7.
50. Meler E, Figueras F, Bennasar M, Gomez O, Crispi F, Gratacos E. The prognostic role of uterine artery Doppler investigation in patients with severe early-onset preeclampsia. *Am J Obstet Gynecol* 2010 Jun;202(6):559.e1-4.
51. Martínez J, Gómez O, Bennasar M, Olivella A, Crispi F, Puerto B, Gratacós E. The 'question mark' sign as a new ultrasound marker of tetralogy of Fallot in the fetus. *Ultrasound Obstet Gynecol.* 2010 Nov;36(5):556-60.
52. Eixarch E, Figueras F, Hernández-Andrade E, Crispi F, Nadal A, Torre I, Oliveira S, Gratacós E. An experimental model of fetal growth restriction based on selective ligation of uteroplacental vessels in the pregnant rabbit. *Fetal Diagn Ther.* 2009;26(4):203-11.
53. Meler E, Figueras F, Mula R, Crispi F, Benassar M, Gómez O, Gratacós E. Prognostic Role of Uterine Artery Doppler in Patients with Preeclampsia. *Fetal Diagn Ther.* 2010;27(1):8-13
54. Crispi F, Comas M, Hernández-Andrade E, Eixarch E, Gómez O, Figueras F, Gratacós E. Does pre-eclampsia influence fetal cardiovascular function in early-onset intrauterine growth restriction? *Ultrasound Obstet Gynecol.* 2009 Dec;34(6):660-5.
55. Hernandez-Andrade E, Crispi F, Benavides-Serralde JA, Plasencia W, Diesel HF, Eixarch E, Acosta-Rojas R, Figueras F, Nicolaidis K, Gratacós E. Contribution of the myocardial performance index and aortic isthmus blood flow index to predicting mortality in preterm growth-restricted fetuses. *Ultrasound Obstet Gynecol.* 2009 Oct;34(4):430-6.
56. Tintu A, Rouwet E, Verlohren S, Brinkmann J, Ahmad S, Crispi F, van Bilsen M, Carmeliet P, Staff AC, Tjwa M, Cetin I, Gratacos E, Hernandez-Andrade E, Hofstra L, Jacobs M, Lamers WH, Morano I, Safak E, Ahmed A, le Noble F. Hypoxia induces dilated cardiomyopathy in the chick embryo: mechanism, intervention, and long-term consequences. *PLoS ONE.* 2009;4:e5155.
57. Benavides-Serralde A, Hernández-Andrade E, Fernández-Delgado J, Plasencia W, Scheier M, Crispi F, Figueras F, Nicolaidis KH, Gratacós E. Three-dimensional sonographic calculation of the volume of intracranial structures in growth-restricted and appropriate-for-gestational age fetuses. *Ultrasound Obstet Gynecol.* 2009;33:530-7.
58. Figueras F, Benavides A, Del Rio M, Crispi F, Eixarch E, Martinez JM, Hernandez-Andrade E, Gratacós E. Monitoring of fetuses with intrauterine growth restriction: longitudinal changes in ductus venosus and aortic isthmus flow. *Ultrasound Obstet Gynecol.*

2009;33:39-43.

59. Eixarch E, Meler E, Iraola A, Illa M, Crispi F, Hernandez-Andrade E, Gratacos E, Figueras F. Neurodevelopmental outcome in 2-year-old infants who were small-for-gestational age term fetuses with cerebral blood flow redistribution. *Ultrasound Obstet Gynecol*. 2008;32:894-9.

2008;32:894-9.

60. Crispi F, Hernandez-Andrade E, Pelsers MM, Plasencia W, Benavides-Serralde JA, Le Noble F, Ahmed A, Glatz JF, Nicolaides KH, Gratacos E. Cardiac dysfunction and cell damage across clinical stages of severity in growth-restricted fetuses. *Am J Obstet Gynecol* 2008;199:254.e1-8

2008;199:254.e1-8

61. Figueroa-Diesel H, Hernandez-Andrade E, Benavides-Serralde A, Crispi F, Acosta-Rojas R, Cabero L, Gratacos E. Cerebral venous blood flow in growth restricted fetuses with abnormal flow in the umbilical artery before 32 weeks of gestation. *Eur J Obstet Gynecol Reprod Biol* 2008;140:201-205.

62. Crispi F, Llurba E, Domínguez C, Martín-Gallán P, Cabero L, Gratacos E. Predictive value of angiogenic factors and uterine artery Doppler for early- versus late-onset pre-eclampsia and intrauterine growth restriction. *Ultrasound Obstet Gynecol* 2008;31:303-9.

63. Palacio M, Sanin-Blair J, Sanchez M, Crispi F, Gomez O, Carreras E, Coll O, Cararach V, Gratacos E. The use of a variable cut-off value of cervical length in women admitted for preterm labor before and after 32 weeks. *Ultrasound Obstet Gynecol* 2007;29:421-6.

64. Crispi F, Domínguez C, Llurba E, Martín-Gallán P, Cabero L, Gratacós E. Placental angiogenic growth factors and uterine artery Doppler findings for characterization of different subsets in preeclampsia and in isolated intrauterine growth restriction. *Am J Obstet Gynecol* 2006;195:201-7.

65. Llurba E, Delgado J, Casals E, Mercader I, Crispi F, Dominguez C, Cabero L, Gratacós E. Atherogenic lipoprotein subfraction profile in preeclamptic women with and without high triglycerides: different pathophysiologic subsets in preeclampsia. *Metabolism* 2005;54:1504-9.

Research projects as a principal investigator

1. Project number: PI14/00226

Title: Impacto de la restricción de crecimiento intrauterino en la dinámica del remodelado cardiovascular en las diferentes etapas de la vida.

Funding body: Instituto de Salud Carlos III

Duration: 2015-2017

Budget: 97.242 €

2. Project number: PI11/00051

Title: Efecto de la terapia antihipertensiva prenatal sobre el remodelado cardiovascular en la restricción de crecimiento intrauterino.

Funding body: Instituto de Salud Carlos III

Duration: 2012-2014

Budget: 86.882 €

3. Title: Diagnóstico precoz y prevención de disfunción cardiovascular en niños concebidos mediante técnicas de reproducción asistida

Funding body: Fundació Agrupació Mutua - Premios Àmbito Infancia

Duration: 2013-2014

Budget: 50.000 €

4. Project number: Biostruct-X proposal 3302

Title: Identification of ultra-structural changes in rabbit cardiomyocytes induced by intrauterine growth restriction.

Funding body: Biostruct-X
duration: 2013
Budget: 100 units beam time at the BESSY-II synchrotron (Helmholtz-Zentrum Berlin)

5. Project: Premis 'Emili Letang'
Title: Programación cardiovascular fetal en gestantes infectadas por el virus de la inmunodeficiencia humana.
Funding body: Hospital Clínic Barcelona
Duration: 2014
Financiación: 6000 €

International stays

- 6 months stay at Department of Echocardiography (St George's Hospital, London, UK) with Prof George Sutherland, 2009, London, UK.
- 3 months stay at Harris Birthright Research Centre for Fetal Medicine (King's College Hospital, London, UK) with Prof. Kypros H. Nicolaides, 2006, London, UK.

Doctoral thesis directed

1. PhD student: Montserrat Comas.
Title: Cardiac dysfunction in early and late IUGR measured by tissue Doppler
Year of defense: 2011.
University: Universitat de Barcelona

2. PhD student: Monica Cruz-Lemini.
Title: Fetal cardiovascular dysfunction in intrauterine growth restriction as a predictive marker of perinatal outcome and cardiovascular disease in childhood
Year of defense: 2013.
University: Universitat de Barcelona

3. PhD student: Iosifina Stergiotou.
Title: Patterns of maternal and neonatal vascular adaptations in placental disease
Year of defense: 2014.
University: Universitat de Barcelona

4. PhD student: Anna Gonzalez-Tendero.
Title: Multiscale characterization of cardiac remodeling induced by intrauterine growth restriction, at organ, cellular and subcellular level
Year of defense: 2014.
University: Universitat de Barcelona

Patents

Inventors: Eduard Gratacós, Francesc Figueras, Fàtima Crispi, Luis LaSalvia, James Meenan
Title: Solution on pre-eclampsia screening on general population of pregnant women
Number: 61/637
Date: 30/04/2012
Titular entity: Hospital Clínic-IDIBAPS
Countries: Spain, USA.
Company: Siemens AG