

ANNUAL REPORT 2013



MATERNAL-FETAL
MEDICINE
RESEARCH
GROUP



fetal iD

FETAL MEDICINE
RESEARCH CENTER

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Welcome fetal i+D Annual Report 2013

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Yet another year,
we present the
annual report
from the fetal and
perinatal medicine
investigation team
fetal i+D.



2013 has served to consolidate our working philosophy: the dedication of our five lines of research has yielded a substantial increase in our scientific production and earned them recognition as a CIBERER research team of excellence. Furthermore, the first edition of our program on Fetal Medicine Erasmus Mundus is unfolding with resounding success.

On the other hand, we have opened up new paths: the new foundation Fetal Medicine Barcelona, which is expected to achieve the goal of bringing knowledge of fetal medicine to all sectors and spheres of society, thanks to initiatives such as t

the training courses or our social website inatal.

We look forward to the future and to what it holds in store for us; for the moment, we would like to thank all patients, families, sponsors, friends and collaborators for their unwavering support during this year 2013. We wish you enjoy reading this report as it is the result of both your support and our work.

Eduard Gratacós
fetal i+D director

An aerial photograph of a university campus. The top portion of the image is overlaid with a semi-transparent blue rectangle. The text 'THE CENTER' is written in large, white, sans-serif capital letters, and 'Excellent research' is written below it in a smaller, white, sans-serif font. The campus below features several large, multi-story buildings with classical architectural elements like domes and arched windows. There are many trees, including palm trees, and a central courtyard area. In the background, a city skyline is visible under a clear sky.

THE CENTER

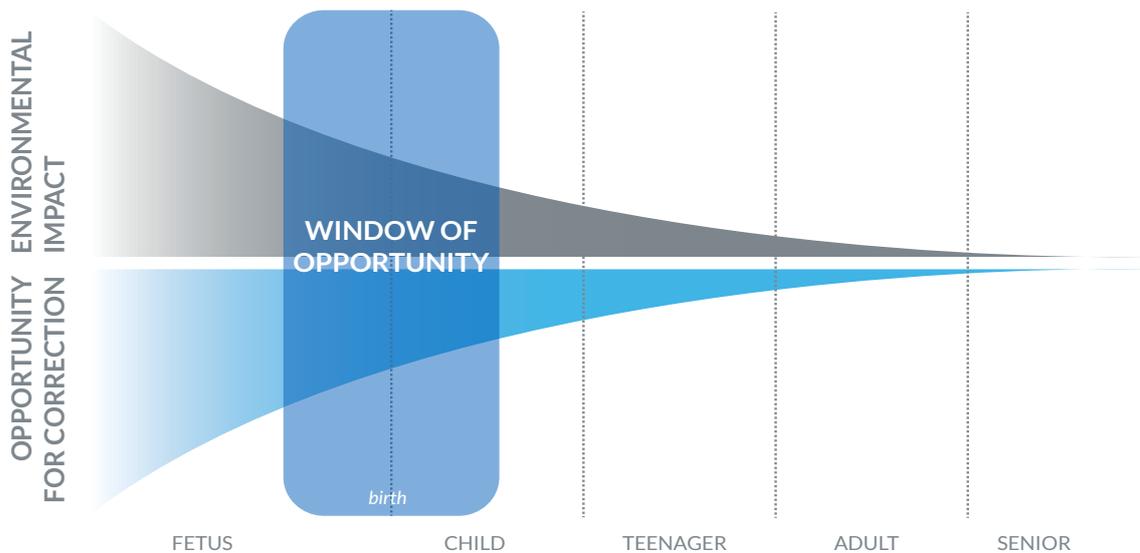
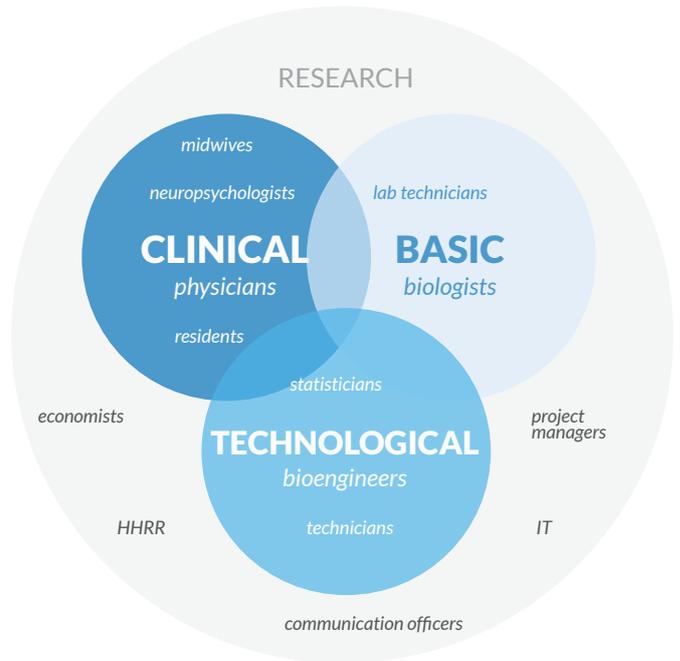
Excellent research

fetal i+D Fetal Medicine Research Center

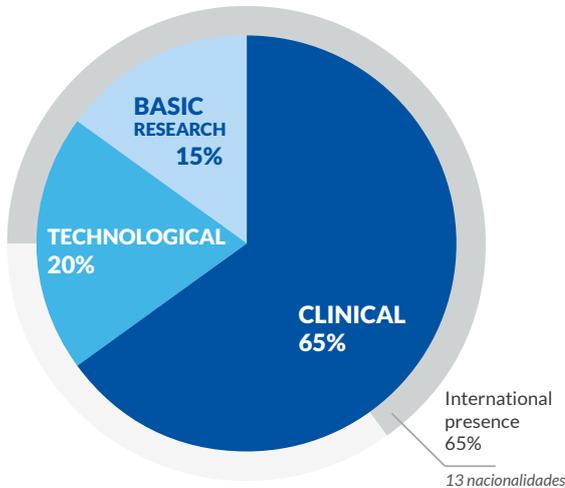
We specialize in Fetal and Perinatal Medicine. We cure before birth.

Our world-renowned approach to medical practice conceives of the fetus as a patient and it integrates prenatal and postnatal care through Maternal-fetal and neonatology services, addressing one problem from different perspectives so as to overcome it efficiently and innovatively.

Our cross-disciplinary team integrates professionals from clinical, basic and technological areas as well as a solid research management infrastructure.



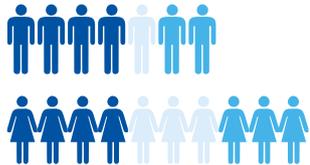
>> The environment inversely models our biological functions on age. Fetal weeks correspond to years in the life of a child and decades in the one of an adult. Therefore, finding solutions to problems arisen in the prenatal stage during this very stage allows us to open a unique window of opportunity for premature diagnosis and intervention.



A team with a future

Fetal medicine is still a young science, currently in expansion, which sets numerous challenges for the future. Our work, therefore, focuses on cross-disciplinary projects for which we efficiently combine different scientific and technical profiles both national and international.

In 2013, the number of staff members has increased la plantilla del grupo de investigación ha aumentado respecto al año anterior con la incorporación de 10 nuevos miembros, pertenecientes tanto al ámbito de investigación como al de gestión.



>70
members

550m²
allocated to
research

excellent
research
center
CIBERER

1,2M €
invested in
projects

>> All our selection, hiring and training processes, as well as our salary policy follow the principle of equal opportunities in all areas of the Team.

Nature



The Biomedical Research Institute August Pi i Sunyer (IDIBAPS) is the first health research facility accredited by the national health system with a scientific productivity amongst the highest ones in Europe. The center divides its research into 5 main areas that include almost 60 research teams. The Hospital Clínic of Barcelona is one of its foundational members.



The Hospital Clínic of Barcelona is a centenary center, and a reference in terms of clinical care and research in the south of Europe. The hospital offers high-quality services focused on patient care, an outstanding biomedical research programme and great training opportunities. Its experience and its history are one of the main bases for IDIBAPS activities.

The Clínic Foundation for Biomedical Research (FCRB) is responsible for the administrative management of the Team.

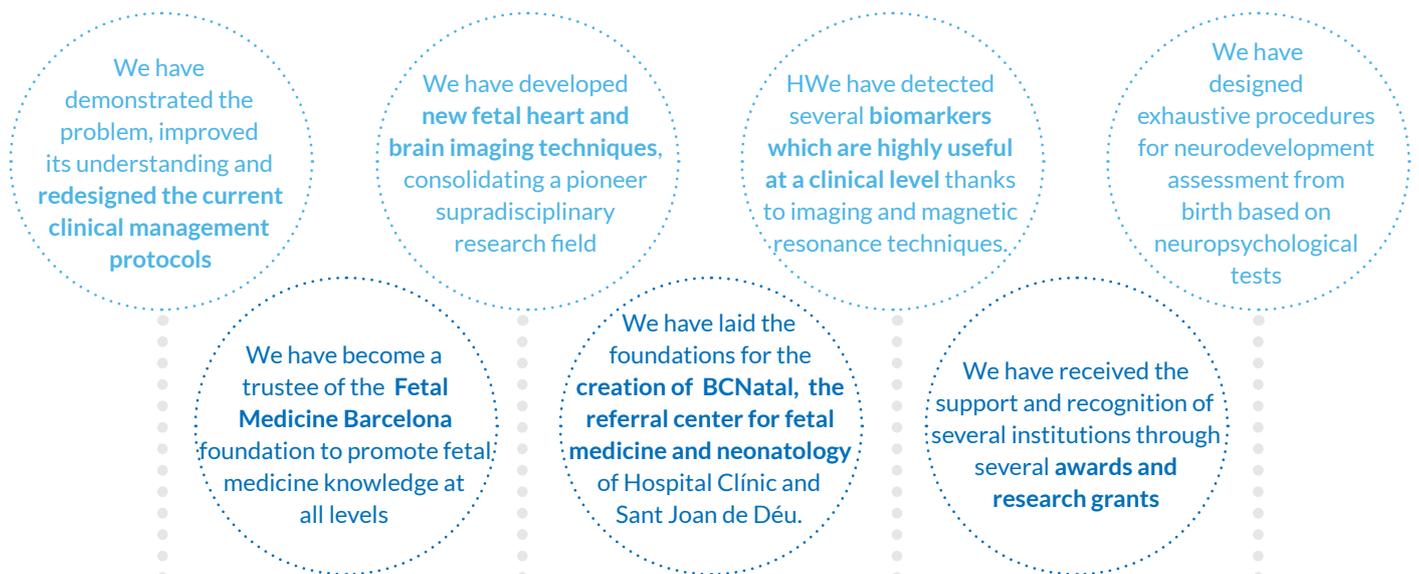
Most of our research work takes place at the Hospital Clínic of Barcelona:

- Maternitat Site: Research, platforms, management.
- Villarroel Site: MRI image processing.

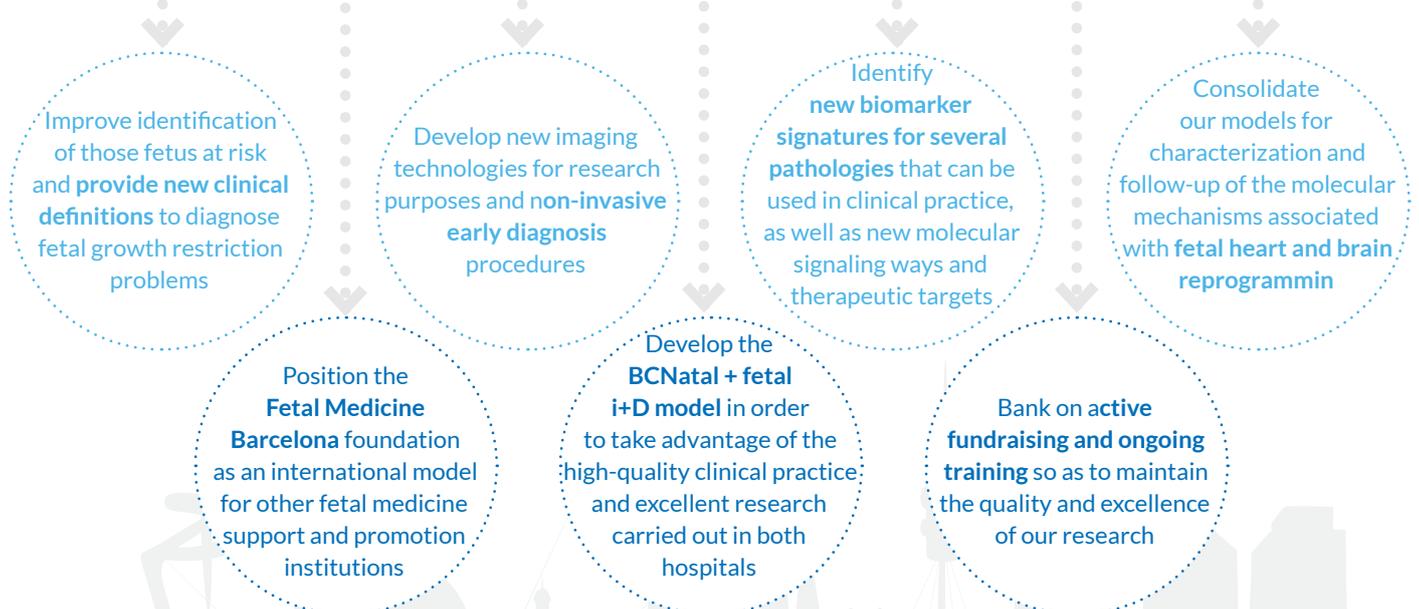
However, certain agreements and strategic alliances allow us to use the animal facilities at the UB pharmacy department and the Sant Joan de Déu Hospital.

Milestones and challenges

Throughout 2013, we have kept on developing new technologies and analysis methods to better understand fetal reprogramming (specially focusing on fetal heart and brain) in order to diagnose and treat anomalies that were impossible to diagnose at that stage. This year we have also set ground for several new scientific projects and outreach initiatives:



We want 2014 to be a year of consolidation that brings us closer to our ideal of a 4P medicine (predictive, preventive, personalized, and participative) always keeping the highest quality standards. Due to it, our main challenges involve the development of biomarkers and imaging techniques that allow us to intervene in an efficient, minimally-invasive way. We will work on several cross-disciplinary projects so as to come up with real solutions to fetal problems. We want to:





FETAL MEDICINE
RESEARCH CENTER



THE TEAM

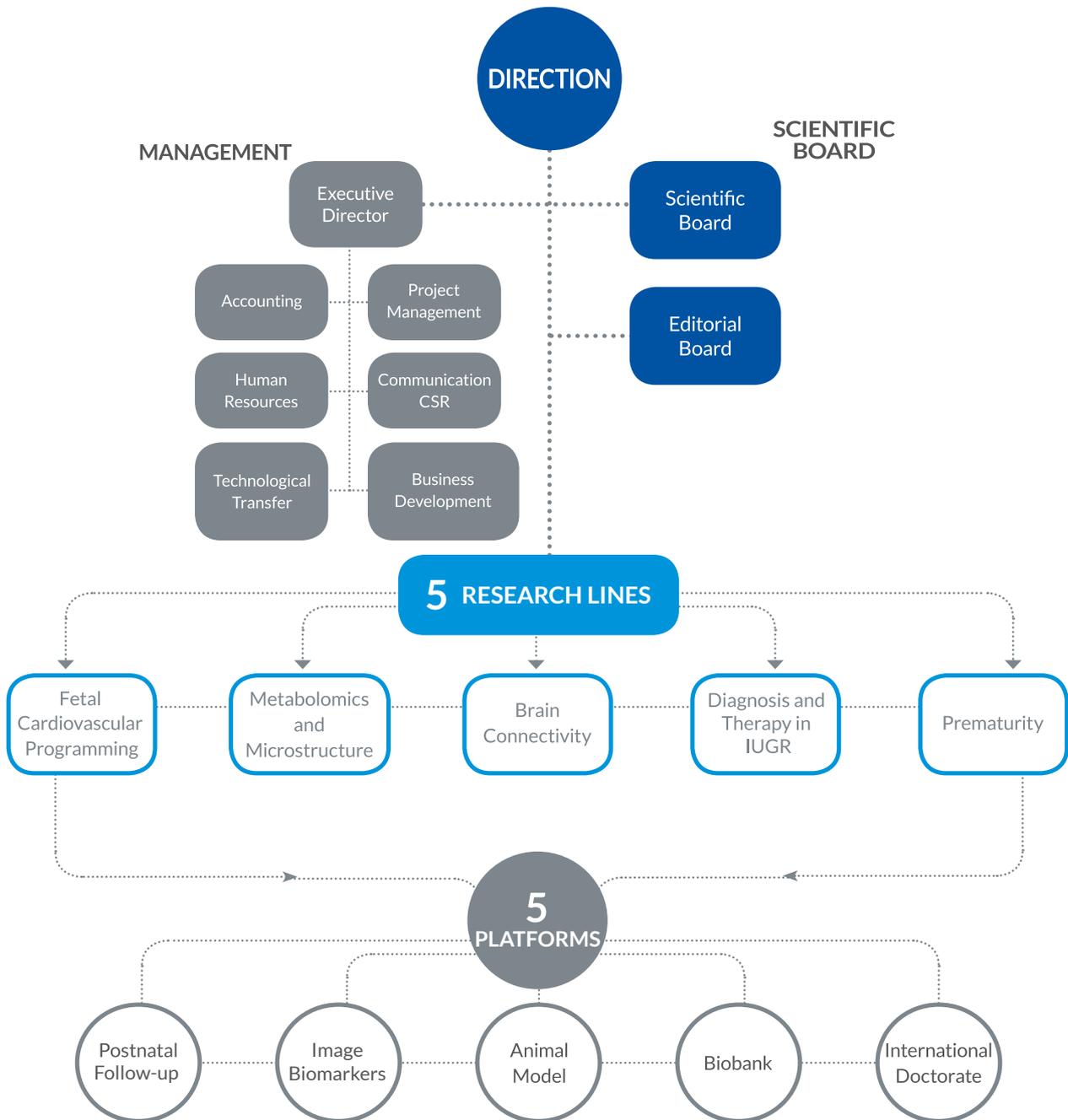
Our research lines and platforms



fetal i+D Research Group
La Maternitat (Barcelona)
July 2013

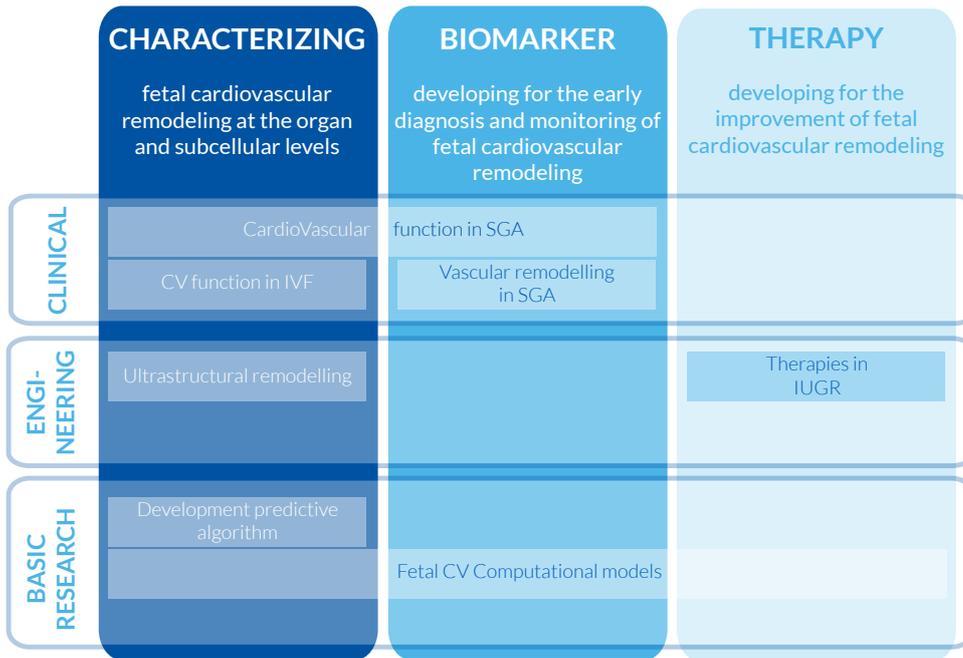
The fetal i+D research lines share a common objective, which is to identify and treat those diseases that originate in the prenatal stage and may lead to a poor quality of life in children and adults. By treating the fetus as an early patient, we can start treating for these conditions during the prenatal stage, minimizing or even eliminating any possible sequels. The research mainly focuses on heart and brain development, as it has been shown that fetal diseases particularly affect the development of these two organs.

Organizational chart 2013



Fetal Cardiovascular Programming

Fàtima Crispi



Fàtima Crispi



Bart Bijmens

F. Crispi received the “Àmbit infància” award from Agrupació Mútua foundation for her project “Early diagnosis and prevention of cardiovascular dysfunction in children conceived via ART techniques”



Mónica Cruz



Brenda Valenzuela



Anna González



Elena Demicheva



Patricia García



Àngels Kateb

“Thanks to the development of innovative techniques we will be able to predict, treat and improve the quality of the lives of those children at a higher risk for cardiovascular problems”

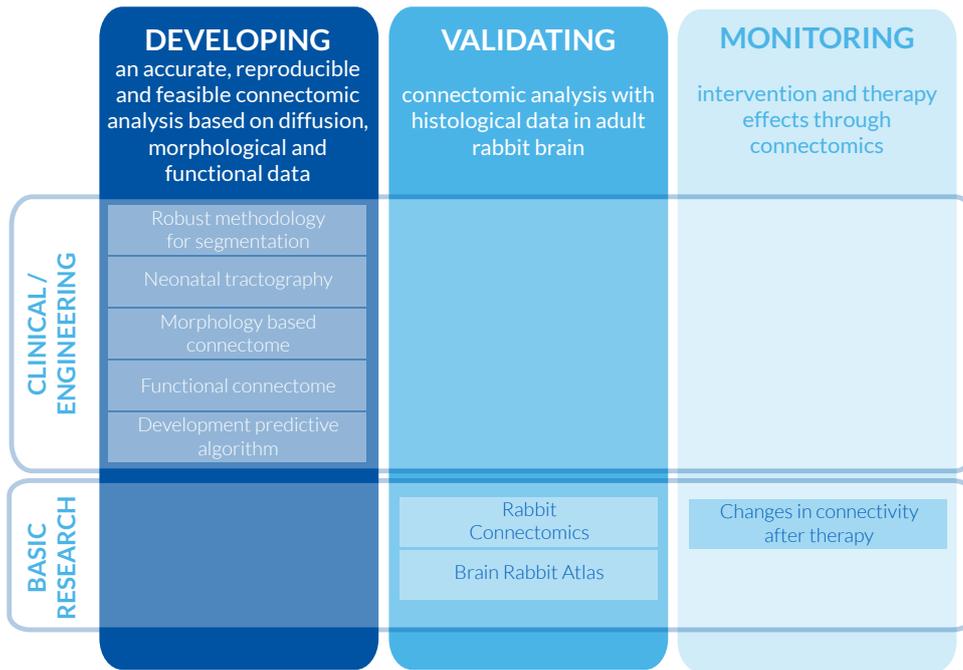
The fetal cardiovascular programming research line focuses on those prenatal circumstances that may induce a higher postnatal cardiovascular risk, such as intrauterine growth restriction, pregnancies obtained via assisted reproduction techniques, and prematurity.

To do so, the team brings together medical translational fetal medicine specialists, together with pediatricians and cardiologists, as well as biologists, biotechnologists and engineers.

The main objectives of the line include getting a better understanding of the pathophysiologic mechanisms of fetal cardiovascular programming, the development of biomarkers that allow early detection and monitoring of cardiovascular remodeling and putting into practice therapies that can improve the cardiovascular prognosis of these children.

Brain Connectivity

Elisenda Eixarch



Elisenda Eixarch



Dafnis Batallé



Emma Muñoz



Nadine Hahner

“Connectomics represent a new opportunity to gain understanding of fetal brain programming, a stage where early intervention can really make a difference.”

The main objective of the brain connectivity line is to develop quantitative imaging biomarkers for early diagnosis of neurodevelopmental disorders based on the analysis of the connections in the brain by magnetic resonance imaging (MRI), a methodology known as connectomics.

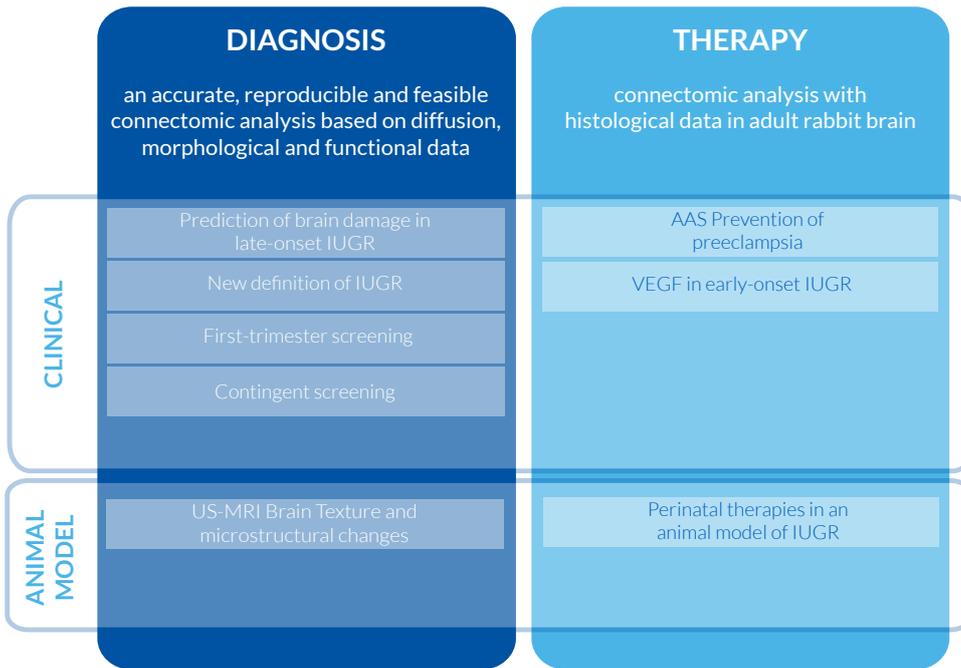
Once the individual connectomes – connectivity networks - are obtained, the team applies graph theory to analyze and objectively quantify the functioning of each connectome, correlating the results

with several neurodevelopmental tests results.

Having these biomarkers available would make early identification of neurodevelopmental disorders possible, as well as the implementation of specific programs of early stimulation and education to improve the development of these children.

Diagnosis and Therapy in IUGR

Francesc Figueras



Francesc Figueras



Míriam Illa

M. Illa received the "Supratentorial pathologies of the brain" Section Award for the poster "Mild ventricular abnormalities: associated findings and prognosis based on frontal horn dilation" in the MRI Vienna 2013 Congress



Francesca Crovetto



Stefania Triunfo



Stefan Savchev



Miguel Parra



Mireia Parés

"It is crucial to provide a new definition of intrauterine growth restriction in order to improve diagnosis and follow-up procedures throughout pregnancy and infancy."

The Diagnosis and Therapy in IUGR research line aim is to identify before birth those babies with growth problems that, unlike small-for-gestational-age babies, will present an abnormal neurodevelopment.

Despite not being severe, these subtle neurodevelopmental alterations are being increasingly taken into account because of its family and social implications.

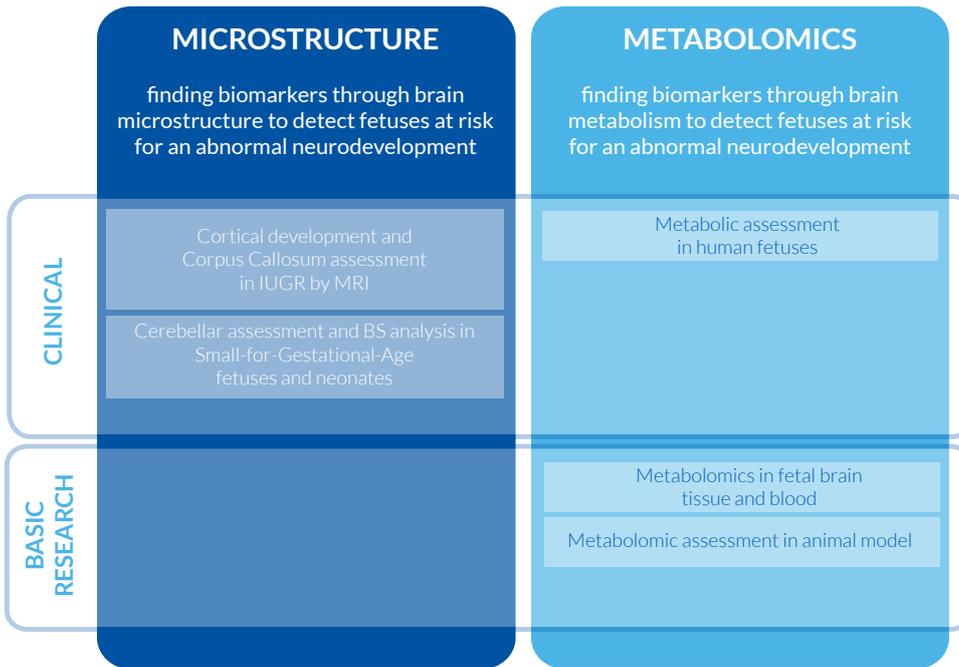
Therefore, using the right definition for IUGR and correctly identifying at-risk babies is especially important in order to establish preventive measures during pregnancy and childbirth, as well as therapies during early childhood.

Metabolomics and Microstructure

Magda Sanz



Magda Sanz



Gabriela Egaña



Rui Simoes



Erwin Van Vliet

“Metabolic biomarkers will help us identify prenatal conditions in a fast, non-invasive, and reliable way. It is the medicine of the future.”

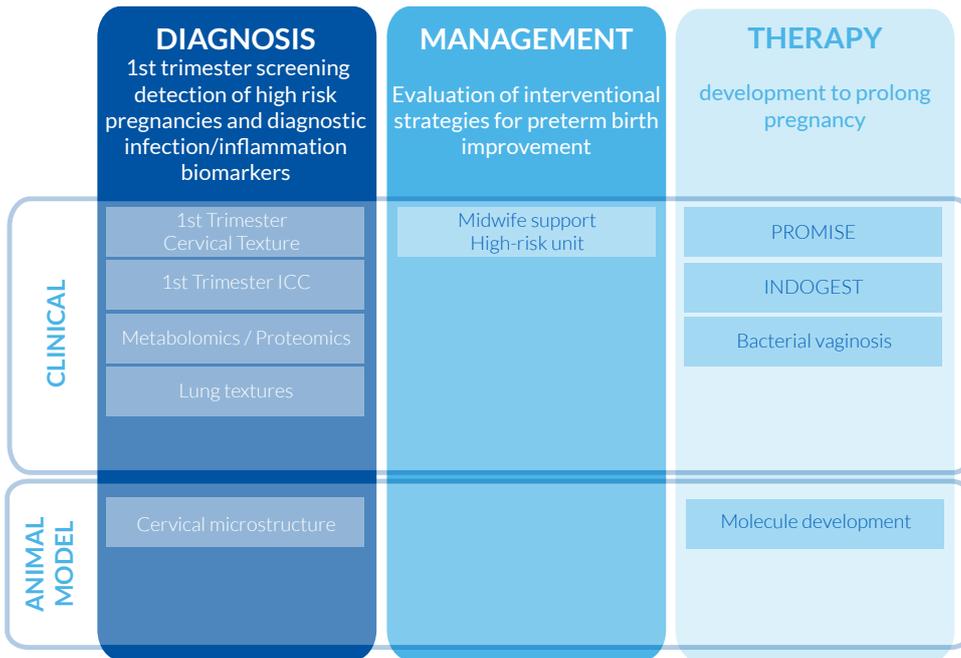
The metabolomics and microstructure research line wants to find and define metabolic differences in the brain of fetuses and children who are diagnosed with growth restriction and that can be considered at risk of neurodevelopmental problems.

In this line, doctors, biologists, psychologists, and engineers work together in order to identify subtle changes in brain microstructure, and the different markers for each pathology. To do so, they use the latest technologies,

mainly based on MRI and other resonance techniques.

Knowing what changes occur in the brain at a metabolic level will be of great value while diagnosing and treating these children at risk, improving their prognosis.

Prematurity Montse Palacio



Montse Palacio



Teresa Cobo

M. Palacio received the award of Research Excellence of the Society for Fetal-Maternal Medicine for the PROMISE study (Vaginal progesterone as maintenance treatment after an episode of preterm labor).



Núria Baños



Maribel Grande



Ana Belén Sánchez

“It is vitally important to know and understand all preterm birth causing factors to be able to intervene and improve perinatal results.”

The main objective of the Prematurity line is to gain a better insight into the causes of preterm birth, the most frequent cause of perinatal morbimortality.

The research combines clinical practice and lab work: the team looks for better detection methods of patients at real risk of preterm delivery, and works to optimize the management and care of neonatal patients,

This way, the team expects to find biomarkers to distinguish at-risk patients from patients with a good prognosis, minimizing needless surgeries and overtreatment, and homogenizing the management of time and resources in clinical care to achieve the best possible results.

On the other hand, and together with TMB, the research line is developing non-invasive methods for monitoring fetal lung maturity.

5 platforms to support research activities



BIOBANK | Fàtima Crispi

A biobank is an organized collection of human biological material and associated information stored for research purposes; therefore, our biobank platform aims to obtain, store, manage and distribute large collections of human biological samples of phenotypes and diseases in fetal medicine.



IMAGE BIOMARKERS | Elisenda Bonet

The image biomarkers platform focuses on the development of new technological solutions for medical applications in fetal medicine, as well as the transfer of medical applications to market. The platform uses Transmural Biotech, the technological transfer spin-off company of the Research group, in order to provide its services.



INTERNACIONAL DOCTORATE | Maite Aguilera

The international doctorate platform works together with the human resources and project management units to ensure the international positioning of the fetal i+D group, by developing several projects, amongst which the fetalMed PhD Erasmus Mundus Joint Doctorate is the main one.



POSTNATAL FOLLOW-UP | Àngela Arranz

The neonatal platform aims to ensure the completion of the follow-up checks of all those patients participating in our different research projects. It also works to maintain the perception of quality and excellence that users have regarding the Research Team.



ANIMAL MODEL | Míriam Illa

The animal model platform is responsible for the management of the experimental projects of the research lines of the group, coordinating the UB animal housing platform, the IDIBAPS management area, the ethics committee, the biobank platform and other institutions like the IDIBAPS platform of medical imaging.

Management unit

The Management unit carries out several support tasks for the fetal i+D research staff.

Research activities have a range of unusual characteristics that condition its management: they are never routine work, and they may present themselves with a certain degree of uncertainty, as they imply the development of something new; therefore, they require constant adaptation and great flexibility.

The fetal i+D research management unit efficiently provides researchers with information, counseling and specific support regarding all those aspects linked to the correct development of a research project.. The unit consists of several specialized departments: project management, purchasing, human resources, IT, business development and internationalization and communication and CSR.

Because of its tasks, the management unit acts as the link between researchers and suppliers, media, and other r+D+i companies and institutions, connecting research with the local and international socioeconomic environment.



Luis Enciso



Estefanía Callado



Balma Gil



Maite Aguilera



Pere Lorente



Gemma Fornons



Héctor Gómez



Ruthy Acosta
External consultant EMJD



PROJECTS

r+D+i



Technological Transfer

Transmural Biotech, a successful project



Developing tomorrow's technologies today.



Transmural Biotech is a spin-off derived from fetal i+D that was created in late 2009 to **develop innovative medical technologies based on image analysis and processing** that ease the way to better non-invasive diagnostics, which will reduce public health costs and improve patient care.

2013 has been a year of growth for the company, which is currently getting ready for the international commercialisation of its first product, **quantusFLM**. Thanks to the incorporation of new investors, a fully-renovated staff and a project and business model completely developed, the future steps of Transmural Biotech include the evolution to its full independence as a business.

Innovation in 2013: quantus FLM

What is quantus FLM?

quantusFLM is a non-invasive, fast and easy-to-use Fetal Lung Maturity test based on the analysis of an image of the fetal lungs obtained by ultrasound. Simply using a 4-chamber-view fetal ultrasound, quantusFLM is able to provide an accurate result of baby's lung maturity in a few minutes.

quantusFLM offers similar accuracy to current methods being 100% non-invasive



A revolution in Fetal Lung Maturity tests



FAST



NON INVASIVE



RELIABLE

PROJECTS

Research projects 2013

Research projects 2013

ENDING IN 2013

A multidisciplinary research programme for the evaluation of diagnostic techniques and intervention measures for prenatal brain damage using growth restriction as a model.

CEREBRA foundation - Cerebra06

Dr. E. Gratacós

01/10/2007 - 31/12/2013

745.500,00 €

Progesterona vaginal como tratamiento de mantenimiento de gestantes con amenaza de parto pretérmino (Promesa).

Instituto de Salud Carlos III (ISCIII) - FIS_EnsClinicos07

Dra. Montse Palacio

29/10/2007 - 30/06/2013

296.450,00 €

Ajuda Pre-doc IDIBAPS

Pre-doc IDIBAPS01

Dr. E. Gratacós (beneficiaria: Anna Gonzàlez)

01/01/2009 - 31/12/2013

70.000,00 €

Fisiopatologia de la Reproducció Humana

AGAUR- Generalitat de Catalunya - AGAUR_SGR09

Dr. J. Balasch

23/07/2009 - 31/12/2013

58.240,00 €

Ayudas postdoctorales de perfeccionamiento Sara Borrell

Instituto de Salud Carlos III (ISCIII) - Contratos Sara Borrell 2009

Dr. E. Gratacós (beneficiaria: Nelly Padilla)

01/01/2010 - 31/12/2013

144.000,00 €

Contratos de formación en investigación Río Hortega para profesionales que hayan finalizado el periodo de FSE

Instituto de Salud Carlos III (ISCIII) - Contratos Río Hortega 2009

Dr. E. Gratacós (beneficiaria: Teresa Cobo)

13/01/2010 - 12/01/2013

108.000,00 €

ONGOING IN 2013

eVV- endoVascularVision: new endoscopic tools for real time vascular assisted vision

European Commission - ENDO-VV

Dr. E. Gratacós

01/09/2010 - 31/08/2014

1.172.442,00 €

Contratos de formación en investigación Río Hortega para profesionales que hayan finalizado el periodo de FSE

Instituto de Salud Carlos III (ISCIII) - Contratos Río Hortega 2010

Dr. E. Gratacós (beneficiaria: Magda Sanz)

01/01/2011 - 30/04/2014

108.000,00 €

Evaluación del valor predictivo de mal resultado perinatal del perfil proteómico y metabólico cérvico-vaginal en pacientes con amenaza de parto prematuro y rotura prematura de membranas

Instituto de Salud Carlos III (ISCIII) - FIS 2010

Dra. Montse Palacio

01/01/2011 - 31/12/2014

83.974,00 €

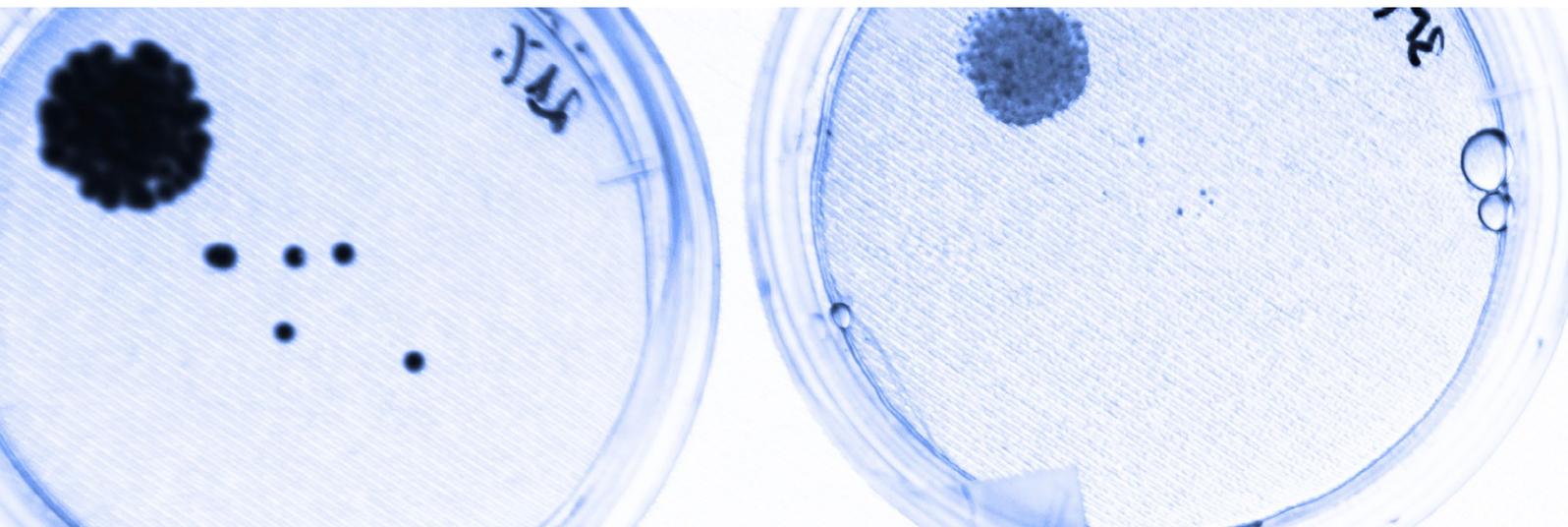
Estudio del neurodesarrollo a través de distintas técnicas de resonancia nuclear magnética, (Espectroscopia, DTI Y análisis de texturas) y su asociación con el neurodesarrollo.

Fundación Dexeus Salud de la Mujer - Beca Dexeus N11

Dra. Magda Sanz

07/03/2012 - 06/03/2014

6.000,00 €



Contratos de formación en investigación Río Hortega para profesionales que hayan finalizado el periodo de FSE.

Instituto de Salud Carlos III (ISCIII) - Río Hortega 2011
Dr. E. Gratacós (beneficiaria: Miriam Illa)
15/01/2012 - 14/01/2014
72.000,00 €

Ayudas postdoctorales de perfeccionamiento Sara Borrell

Instituto de Salud Carlos III (ISCIII) - Contratos Sara Borrell 2011
Dr. E. Gratacós (beneficiaria: Emma Muñoz)
01/01/2012 - 31/12/2014
108.000,00 €

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

Instituto Salud Carlos III - FIS_11
Fátima Crispi
01/01/2012 - 31/12/2014
86.882,00 €

Biomarcadors quantitius d'imatge: Nous mètodes per a la predicció del neurodesenvolupament anormal en nens amb retard de creixement fetal basats en connectòmica.

LA CAIXA - Obra Social la Caixa
Dr. E. Gratacós
03/12/2010 - 02/12/2014
1.228.315,00 €

Ayudas predoctorales de formación en investigación biomédica

Instituto Carlos III de Salud (ISCIII) - PFIS
Bart Bijmens (beneficiaria: Patricia Garcia)
01/09/2012 - 30/08/2016
85.200,00 €

STARTED IN 2013

fetalMed PhD EMJD

European Commission - Erasmus Mundus
Dr. E. Gratacós
01/08/2013 - 31/10/2021
5,920.000,00€

EVERREST - Does vascular endothelial growth factor gene therapy safely improve outcome in severe early-onset fetal growth restriction?

European Commission - EVERREST
Dr. E. Gratacós
01/01/2013 - 31/12/2018
426.340,00 €

Evaluación de la función cardiovascular en gemelos supervivientes a una transfusión feto-fetal severa tratada por cirugía fetal.

Fundación Mutua Madrileña - FundMM_13
Dr. E. Gratacós
22/06/2013 - 21/06/2015
39.000,00 €

Identificación de biomarcadores de remodelado subcelular en la programación fetal de disfunción cardiovascular por retraso de crecimiento intrauterino

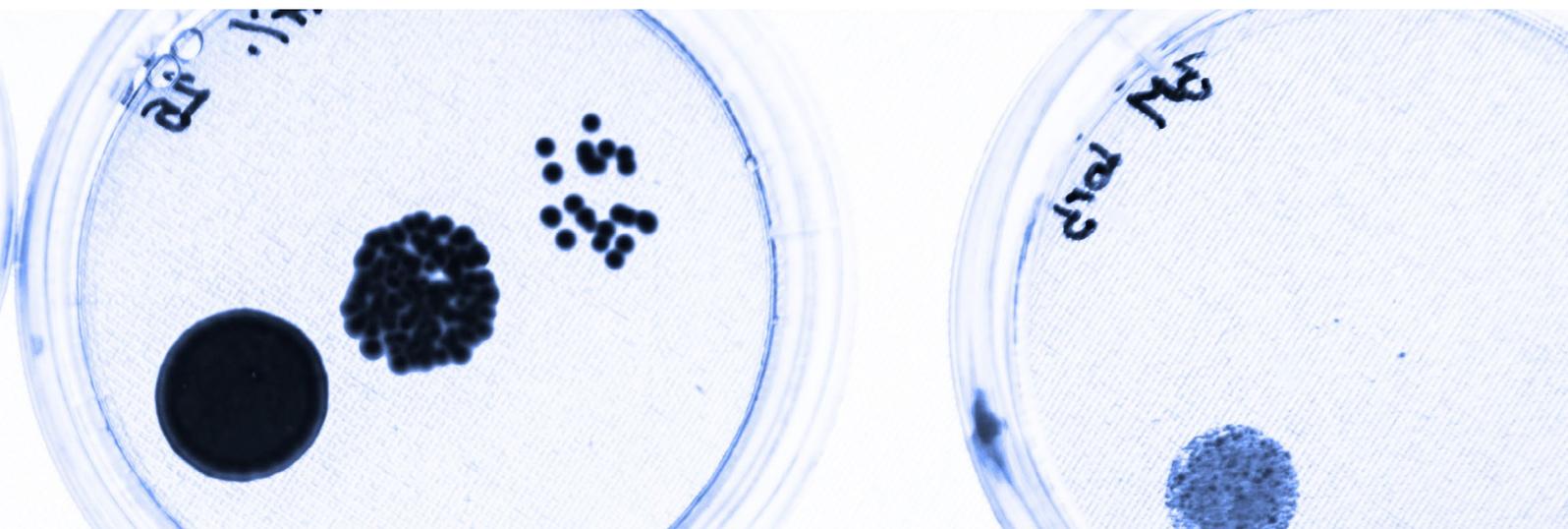
Ministerio de Ciencia e Innovación - SAF2012-37196
Dr. E. Gratacós
01/01/2013 - 31/12/2015
84.700,00 €

Prevención de la lesión neurológica por hipoxia crónica perinatal en un modelo animal de coneja gestante.

Instituto de Salud Carlos III (ISCIII) - FIS
Dr. Francesc Figueras
01/01/2013 - 31/12/2015
92.565,00 €

Evaluación de la función cardiovascular en gemelos supervivientes a una transfusión feto-fetal tratada por cirugía fetal.

Instituto de Salud Carlos III (ISCIII) - FIS2012
Dr. Josep Maria Martínez
01/01/2013 - 31/12/2015
50.500,00 €



RESULTS



Scientific production 2013

Papers

1. Ahlin K, Himmelmann K, Hagberg G, Kacerovsky M, Cobo T, Wennerholm U-B, et al. Non-infectious risk factors for different types of cerebral palsy in term-born babies: a population-based, case-control study. *BJOG* 2013;120:724–31.
2. Ahlin K, Himmelmann K, Hagberg G, Kacerovsky M, Cobo T, Wennerholm U-B, et al. Cerebral palsy and perinatal infection in children born at term. *Obstet Gynecol* 2013;122:41–9.
3. Bataille D, Muñoz-Moreno E, Figueras F, Bargalló N, Eixarch E, Gratacos E. Normalization of similarity-based individual brain networks from gray matter MRI and its association with neurodevelopment in infants with intrauterine growth restriction. *Neuroimage* 2013;83:901–11.
4. Benavides-Serralde JA, Hernández-Andrade E, Cruz-Martinez R, Cruz-Lemini M, Scheier M, Figueras F, et al. Doppler evaluation of the posterior cerebral artery in normally grown and growth restricted fetuses. *Prenat Diagn* 2013.
5. Borrell A, Grande M, Bennasar M, Borobio V, Jimenez JM, Stergiotou I, et al. First-trimester detection of major cardiac defects with the use of ductus venosus blood flow. *Ultrasound Obstet Gynecol* 2013;42:51–7.
6. Borrell A, Stergiotou I. Miscarriage in contemporary maternal-fetal medicine: targeting clinical dilemmas. *Ultrasound Obstet Gynecol* 2013;42:491–7.
7. Brix N, Secher N, McCormack C, Helmig R, Hein M, Weber T, et al. Randomised trial of cervical cerclage, with and without occlusion, for the prevention of preterm birth in women suspected for cervical insufficiency. *BJOG An Int J Obstet Gynaecol* 2013;120:613–20.
8. Cobo T, Kacerovsky M, Andrys C, Drahosova M, Musilova I, Hornychova H, et al. Umbilical cord blood IL-6 as predictor of early-onset neonatal sepsis in women with preterm prelabour rupture of membranes. *PLoS One* 2013;8:e69341.
9. Cobo T, Tsiartas P, Kacerovsky M, Holst R-M, Hougaard DM, Skogstrand K, et al. Maternal inflammatory response to microbial invasion of the amniotic cavity: analyses of multiple proteins in the maternal serum. *Acta Obstet Gynecol Scand* 2013;92:61–8.
10. Crovetto F, Somigliana E, Peguero A, Figueras F. Stroke during pregnancy and pre-eclampsia. *Curr Opin Obstet Gynecol* 2013;25:425–32.
11. Cruz-Lemini M, Crispi F, Valenzuela-Alcaraz B, Figueras F, Gómez O, Sitges M, et al. A fetal cardiovascular score to predict infant hypertension and arterial remodeling in intrauterine growth restriction. *Am J Obstet Gynecol* 2013.
12. Cruz-Lemini M, Crispi F, Valenzuela-Alcaraz B, Figueras F, Sitges M, Gómez O, et al. Value of annular M-mode displacement vs tissue Doppler velocities to assess cardiac function in intrauterine growth restriction. *Ultrasound Obstet Gynecol* 2013;42:175–81.
13. Cruz-Martinez R, Castañon M, Moreno-Alvarez O, Acosta-Rojas R, Martínez-Crespo JM, Gratacos E. Usefulness of lung-to-head ratio and intrapulmonary arterial Doppler in predicting neonatal morbidity in fetuses with congenital diaphragmatic hernia treated with fetoscopic tracheal occlusion. *Ultrasound Obstet Gynecol* 2013;41:59–65.
14. Dadvand P, Figueras F, Basagaña X, Beelen R, Martinez D, Cirach M, et al. Ambient air pollution and preeclampsia: a spatiotemporal analysis. *Environ Health Perspect* 2013;121:1365–71.
15. Demicheva E, Crispi F. Long-Term Follow-Up of Intrauterine Growth Restriction: Cardiovascular Disorders. *Fetal Diagn Ther* 2013.
16. Doné E, Gratacos E, Nicolaidis KH, Allegaert K, Valencia C, Castañon M, et al. Predictors of neonatal morbidity in fetuses with severe isolated congenital diaphragmatic hernia undergoing fetoscopic tracheal occlusion. *Ultrasound Obstet Gynecol* 2013;42:77–83.
17. Egaña-Ugrinovic G, Sanz-Cortes M, Figueras F, Bargalló N, Gratacos E. Differences in cortical development assessed by fetal MRI in late-onset intrauterine growth restriction. *Am J Obstet Gynecol* 2013;209:126.e1–8.
18. Eixarch E, Valsky D, Deprest J, Baschat AA, Lewi L, Ortiz JU, et al. Preoperative prediction of the individualized risk of early fetal death after laser therapy in twin-to-twin transfusion syndrome. *Prenat Diagn* 2013;1–6.
19. Engels AC, Dekoninck P, van der Merwe JL, Van Mieghem T, Stevens P, Power B, et al. Does website-based information add any value in counseling mothers expecting a baby with severe congenital diaphragmatic hernia? *Prenat Diagn* 2013;33:1027–32.
20. Garcia-Posada R, Eixarch E, Sanz M, Puerto B, Figueras F, Borrell A. Cisterna magna width at 11-13 weeks in the detection of posterior fossa anomalies. *Ultrasound Obstet Gynecol* 2013;41:515–20.

21. Gonzalez-Tendero A, Torre I, Garcia-Canadilla P, Crispi F, García-García F, Dopazo J, et al. 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;305:H1752-60.
22. Grande M, Cararach V, Casals E, Borrell A. First-trimester Down syndrome screening in renal-transplanted pregnant women: a model for adjusting the false-positives rates. *Prenat Diagn* 2013;33:467-70.
23. Grande M, Ordoñez E, Cirigliano V, Cid J, Grau E, Pericot A, et al. Clinical application of midtrimester non-invasive fetal RHD genotyping and identification of RHD variants in a mixed-ethnic population. *Prenat Diagn* 2013;33:173-8.
24. Gratacos E. Towards an integrated third-trimester screening in pregnancy. *Fetal Diagn Ther* 2013;33:141-2.
25. Hernández-Andrade E, Stampalija T, Figueras F. Cerebral blood flow studies in the diagnosis and management of intrauterine growth restriction. *Curr Opin Obstet Gynecol* 2013;25:138-44.
26. Hodges R, Endo M, La Gerche A, Eixarch E, Dekoninck P, Ferferieva V, et al. Fetal echocardiography and pulsed-wave Doppler ultrasound in a rabbit model of intrauterine growth restriction. *J Vis Exp* 2013.
27. Illa M, Eixarch E, Batalle D, Arbat-Plana A, Muñoz-Moreno E, Figueras F, et al. Long-term functional outcomes and correlation with regional brain connectivity by MRI diffusion tractography metrics in a near-term rabbit model of intrauterine growth restriction. *PLoS One* 2013;8:e76453.
28. Illa M, Mula R, Arigita M, Grande M, Gonce A, Borobio V, et al. Likelihood ratios to apply for nasal bone, ductus venosus and tricuspid flow at the 11-13 weeks' scan in down syndrome screening. *Fetal Diagn Ther* 2013;34:116-20.
29. Kacerovsky M, Celec P, Vlkova B, Skogstrand K, Hougaard DM, Cobo T, et al. Amniotic fluid protein profiles of intraamniotic inflammatory response to *Ureaplasma* spp. and other bacteria. *PLoS One* 2013;8:e60399.
30. Kacerovsky M, Cobo T, Andrys C, Musilova I, Drahosova M, Hornychova H, et al. The fetal inflammatory response in subgroups of women with preterm prelabor rupture of the membranes. *J Matern Fetal Neonatal Med* 2013;26:795-801.
31. Lobmaier SM, Figueras F, Mercade I, Perello M, Peguero A, Croveto F, et al. Angiogenic factors versus Doppler follow up in the prediction of adverse outcome among late pregnancy small-for-gestational-age fetuses. *Ultrasound Obstet Gynecol* 2013.
32. Mademont-Soler I, Morales C, Soler A, Martínez-Crespo JM, Shen Y, Margarit E, et al. Prenatal diagnosis of chromosomal abnormalities in fetuses with abnormal cardiac ultrasound findings: evaluation of chromosomal microarray-based analysis. *Ultrasound Obstet Gynecol* 2013;41:375-82.
33. Martínez-Crespo JM, Castañon M, Gómez O, Prat J, Eixarch E, Bennasar M, et al. Evaluation of fetal vocal cords to select candidates for successful fetoscopic treatment of congenital high airway obstruction syndrome: preliminary case series. *Fetal Diagn Ther* 2013;34:77-84.
34. Martínez-Crespo JM, Prat J, Gómez O, Crispi F, Bennasar M, Puerto B, et al. Decompression through Tracheobronchial Endoscopy of Bronchial Atresia Presenting as Massive Pulmonary Tumor: A New Indication for Fetoscopic Surgery. *Fetal Diagn Ther* 2013;33:69-74.

PUBLISHED PAPERS 2013

59

is the number of papers published by the research group in 2013. They have been published in more than 20 different journals, including the most relevant ones of the "obstetrics & gynecology" category.

TOTAL IMPACT FACTOR

207,04

Papers(57) y (59) were published by *Circulation*, a journal with an impact factor of 15,202.

FIRST DECILE PAPERS

21

The 21 papers published in first-decile journals -according to their impact factor - prove the excellence of the group's research.

35. Mula R, Savchev S, Parra-Saavedra M, Arranz A, Botet F, Costas-Moragas C, et al. Increased fetal brain perfusion and neonatal neurobehavioral performance in normally grown fetuses. *Fetal Diagn Ther* 2013;33:182–8.
36. Muñoz-Moreno E, Arbat-Plana A, Batalle D, Soria G, Illa M, Prats-Galino A, et al. A magnetic resonance image based atlas of the rabbit brain for automatic parcellation. *PLoS One* 2013;8:e67418.
37. Parra-Saavedra M, Crovetto F, Triunfo S, Savchev S, Parra G, Sanz-Cortes M, et al. Added value of umbilical vein flow as a predictor of perinatal outcome in term small-for-gestational-age fetuses. *Ultrasound Obstet Gynecol* 2013;42:189–95.
38. Parra-Saavedra M, Crovetto F, Triunfo S, Savchev S, Peguero A, Nadal A, et al. Placental findings in late-onset SGA births without Doppler signs of placental insufficiency. *Placenta* 2013;34:1136–41.
39. Parra-Saavedra, Miguel; Cruz-Lemini, Monica; Borobio, Virginia; Bannasar, Mar; Goncé, Anna; Martínez, Josep M; Borrell A. Amniocentesis: guía práctica. *Diagnóstico Prenat* 2013;8.
40. Prats P, Rodríguez I, Comas C, Puerto B. Analysis of three different strategies in prenatal screening for Down's syndrome in twin pregnancies. *J Matern Fetal Neonatal Med* 2013;26:1404–9.
41. Rodríguez MJ, Moreno-Cid M, Rubio A, Pastor C, De León J, Puerto B, et al. Trisomy 8 mosaicism a controversial prenatal diagnosis. *J Obstet Gynaecol* 2013;33:204–5.
42. Sabria J, Comas C, Barceló-Vidal C, Illa M, Echevarria M, Gomez-Roig MD, et al. Cumulative sum plots and retrospective parameters in first-trimester ductus venosus quality assurance. *Prenat Diagn* 2013;33:384–90.
43. Sanz-Cortes M, Carbajo RJ, Crispi F, Figueras F, Pineda-Lucena A, Gratacos 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;8:e80121.
44. Sanz-Cortes M, Egaña-Ugrinovic G, Zupan R, Figueras F, Gratacos E. Brainstem and cerebellar differences and their association with neurobehavior in term small-for-gestational-age fetuses assessed by fetal MRI. *Am J Obstet Gynecol* 2013.
45. Sanz-Cortes M, Figueras F, Bonet-Carne E, Padilla N, Tenorio V, Bargalló N, et al. Fetal brain MRI texture analysis identifies different microstructural patterns in adequate and small for gestational age fetuses at term. *Fetal Diagn Ther* 2013;33:122–9.
46. Sanz-Cortes M, Ratta GA, Figueras F, Bonet-Carne E, Padilla N, Arranz A, et al. Automatic quantitative MRI texture analysis in small-for-gestational-age fetuses discriminates abnormal neonatal neurobehavior. *PLoS One* 2013;8:e69595.
47. Savchev S, Figueras F, Sanz-Cortes M, Cruz-Lemini M, Triunfo S, Botet F, et al. Evaluation of an Optimal Gestational Age Cut-Off for the Definition of Early- and Late-Onset Fetal Growth Restriction. *Fetal Diagn Ther* 2013.



48. Savchev S, Sanz-Cortes M, Cruz-Martinez R, Arranz A, Botet F, Gratacos E, et al. Neurodevelopmental outcome of full-term small-for-gestational-age infants with normal placental function. *Ultrasound Obstet Gynecol* 2013;42:201–6.
49. Scazzocchio E, Figueras F, Crispi F, Meler E, Masoller N, Mula R, et al. Performance of a first-trimester screening of preeclampsia in a routine care low-risk setting. *Am J Obstet Gynecol* 2013;208:203.e1–203.e10.
50. Scazzocchio E, Munmany M, Garcia L, Meler E, Crispi F, Gratacos E, et al. Prognostic Role of Maternal Neutrophil Gelatinase-Associated Lipocalin in Women with Severe Early-Onset Preeclampsia. *Fetal Diagn Ther* 2013.
51. Sebastià C, Garcia R, Gomez O, Paño B, Nicolau C. Fetal magnetic resonance imaging evaluation of congenital diaphragmatic hernia. *Radiologia* 2013.
52. Soria G, Tudela R, Márquez-Martín A, Camón L, Batalle D, Muñoz-Moreno E, et al. The ins and outs of the BCCAo model for chronic hypoperfusion: a multimodal and longitudinal MRI approach. *PLoS One* 2013;8:e74631.
53. 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;209:558.e1–558.e14.
54. Stergiotou I, Crispi F, Valenzuela-Alcaraz B, Cruz-Lemini M, Bijmens B, Gratacos E. Aortic And Carotid Wall Thickness In Term Small-For-Gestational Age Newborns And Relationship

With Prenatal Signs Of Severity. *Ultrasound Obstet Gynecol* 2013.

55. Torné A, Pahisa J, Vidal-Sicart S, Martínez-Roman S, Paredes P, Puerto B, et al. Transvaginal ultrasound-guided myometrial injection of radiotracer (TUMIR): a new method for sentinel lymph node detection in endometrial cancer. *Gynecol Oncol* 2013;128:88–94.

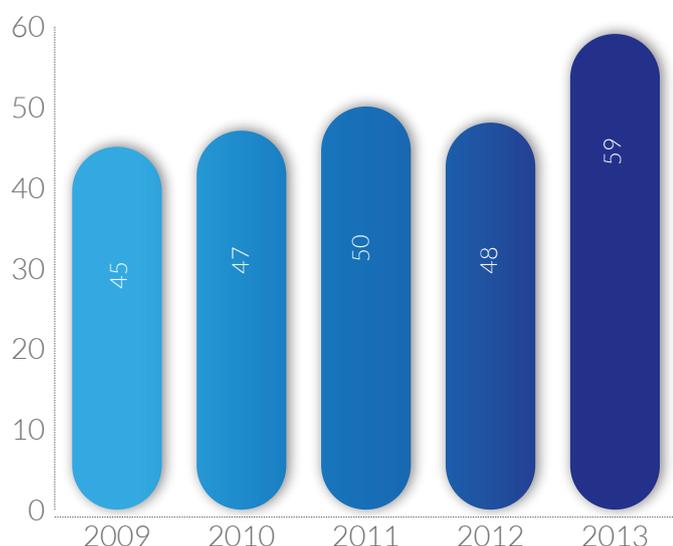
56. Tsiartas P, Kacerovsky M, Musilova I, Hornychova H, Cobo T, Sävmán K, et al. The association between histological chorioamnionitis, funisitis and neonatal outcome in women with preterm prelabor rupture of membranes. *J Matern Fetal Neonatal Med* 2013;26:1332–6.

57. Valenzuela-Alcaraz B, Crispi F, Bijmens B, Cruz-Lemini M, Creus M, Sitges M, et al. Assisted reproductive technologies are associated with cardiovascular remodeling in utero that persists postnatally. *Circulation* 2013;128:1442–50.

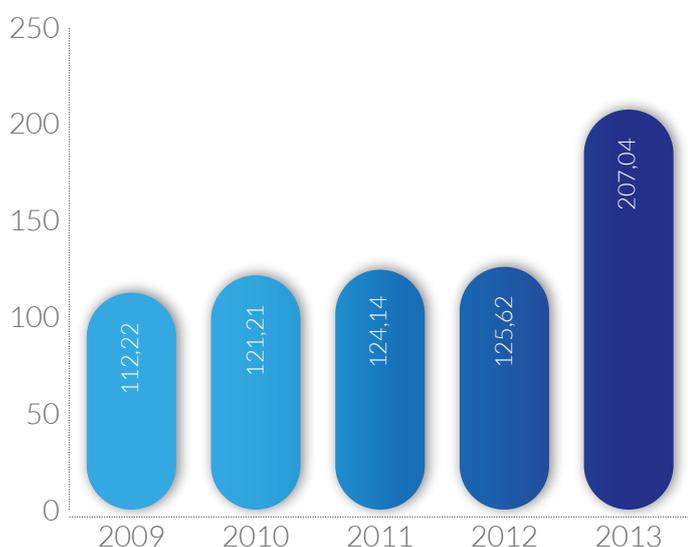
58. van Vliet E, Eixarch E, Illa M, Arbat-Plana A, Gonzalez-Tendero A, Hogberg HT, et al. Metabolomics reveals metabolic alterations by intrauterine growth restriction in the fetal rabbit brain. *PLoS One* 2013;8:e64545.

59. Wang K, Ahmad S, Cai M, Rennie J, Fujisawa T, Crispi F, et al. Dysregulation of hydrogen sulfide producing enzyme cystathionine γ -lyase contributes to maternal hypertension and placental abnormalities in preeclampsia. *Circulation* 2013;127:2514–22.

PUBLISHED PAPERS 2009-2013



IMPACT FACTOR 2009-2013



In 2013, the grupo has undergone an exponential growth in terms of scientific production, which has contributed to the obtaining of the highest score in CIBERER's research quality assessment .

Scientific production 2013

Posters

1. Cruz-Lemini FCM, Valenzuela-Alcaraz B, Figueras F, Gómez O, Sitges M, Bijmens B, Gratacós E. Fetal echocardiographic score for prediction of infant hypertension and arterial remodeling in FGR. 12th World Congress in Fetal Medicine (FMF); 23-27 June 2013; Marbella, Spain.
2. De Alvarado M, Figueroa H, Goity C, Lozano M, Eixarch E, Hernández-Andrade E, Gratacós E, and Irrazabal C. Effect of FGR in fetal rabbit kidney: fetal programming model. 12th World Congress in Fetal Medicine (FMF); 23-27 June 2013; Marbella, Spain.
3. Egana-Ugrinovic, Sanz, Figueras, Bargallo, Couve, Gratacós. Fetal insular cortex and corpus callosum morphometry in late-onset FGR. 12th World Congress in Fetal Medicine (FMF); 23-27 June 2013; Marbella, Spain.
4. Egana-Ugrinovic, Sanz, Figueras, Bargallo, Couve, Gratacós. Insular cortical differences by fetal MRI in late-onset IUGR and its association with neurobehavioral outcome. International Conference on Prenatal Diagnosis and Therapy; pre-congress course. 2-5 June 2013. Lisbon, Portugal
5. Illa M, Eixarch E, Batalle D, Muñoz-Moreno E, Arbat-Plana A, Figueras F, Gratacós E. Animal models of FGR: comparison of neurobehavioral consequences in neonatal and long-term period. 12th World Congress in Fetal Medicine (FMF); 23-27 June 2013; Marbella, Spain.
6. Illa M, Eixarch E, Sanz-Cortes M, Angles S, Fervienza A, Figueras F, Puerto B, Gratacós E. Mild ventricular abnormalities: associated findings and prognosis based on frontal horn dilation; MRI Vienna 2013 (Ultrasound meets Magnetic Resonance Imaging). 4 June 2013. Vienna, Austria
7. Lobmaier SM, Figueras F, Mercade I, Crovetto F, Peguero A, Ortiz JU, Crispi F, Gratacós E. Maternal serum (anti-) angiogenic factors in the 3rd trimester: reference ranges and influence of baseline and doppler characteristics. 12th World Congress in Fetal Medicine (FMF); 23-27 June 2013; Marbella, Spain.
8. P Garcia-Canadilla, P Rudenick, F Crispi, M Cruz, G Palau, E Gratacós, B Bijmens. Understanding Flow Redistribution for Brain Sparing in Intrauterine Growth Restriction using a Lumped Model of the Fetal Circulation. 7th International Conference on Functional Imaging and Modelling of the Heart; 20-22 June 2013. London, UK.
9. Parra-Saavedra M, Crovetto F, Triunfo S, Savchev S, Cruz-Lemini M, Nadal A, Gratacós E, Figueras F. Placental histological findings in late-onset FGR. 12th World Congress in Fetal Medicine (FMF); 23-27 June 2013; Marbella, Spain.
10. Parra-Saavedra M, Crovetto F, Triunfo S, Savchev S, Nadal A, Gratacós E, Figueras F. Late-onset SGA: Neurodevelopmental outcome according to histological signs of placental underperfusion. 12th World Congress in Fetal Medicine (FMF); 23-27 June 2013; Marbella, Spain.
11. Peguero A, Illa M, Eixarch E, Sanz M, Angles S, Fervienza A, Puerto B, Gratacós E. Associated findings in moderate ventricular abnormalities with frontal horn dilation. 12th World Congress in Fetal Medicine (FMF); 23-27 June 2013; Marbella, Spain.
12. Sanz-Cortes M, Egana-Ugrinovic G, Crispi F, Carbajo R, Figueras F, Pineda A, Gratacós E. Metabolomic profile umbilical cord blood in early and late FGR. 12th World Congress in Fetal Medicine (FMF); 23-27 June 2013; Marbella, Spain.
13. Solernou R, Crispi F, Valenzuela-Alcaraz B, Lopez M, Cruz-Lemini M, Gonce A, Migliorelli F, Martinez JM, Gomez O, Gratacós E. Fetal cardiac function in maternal HIV infection and antiretroviral medication. 12th World Congress in Fetal Medicine (FMF); 23-27 June 2013; Marbella, Spain.
14. Valenzuela-Alcaraz B, Crispi F, Bijmens B, Cruz-Lemini M, Creus M, Sitges M, Civico S, Balasch J, Gratacós E. Cardiovascular remodelling in fetuses conceived by ART. 12th World Congress in Fetal Medicine (FMF); 23-27 June 2013; Marbella, Spain.
15. Van Vliet, Eixarch, Illa, González-Tendero, Hogberg, Zhao, Hartung, Gratacós. Intrauterine growth restriction (IUGR) leads to metabolic alterations in the fetal brain of a rabbit model. Jornada enfermedades raras CIBERER. February 2013. Madrid, Spain.

Participation Congresses 2013

JANUARY

- 16 B•Debate | Extremely Preterm Babies. Improving Perinatal Care. (BCN, Spain)
- 28 3º Jornadas clínicas cvREMODO - Congreso ADIRM imagen cardíaca multimodal (Valencia, Spain)

FEBRUARY

- 3 33rd Annual Meeting Society for Maternal Fetal-Medicine, "The Pregnancy Meeting" (San Francisco, USA)
- 15 Royal Society of Medicine - Medical innovations Winter Summit (London, UK)
- 28 VI Reunión Anual del CIBERER (Madrid, Spain)

MARCH

- 20 2013 SGI 60th Annual Scientific Meeting: "Plasticity: Molecules to Motherhood and Beyond" (Orlando, USA)

APRIL

- 10 International Symposium ISUOG (Cartagena, Colombia)
- 12 Primer encuentro de investigadores básicos y clínicos españoles que colaboran sobre el síndrome de Marfan y otras patologías del tejido conectivo (BCN, Spain)
- 25 BMFMS 2013 Annual Conference (Dublin, Ireland)
- 26 Mitochondria, calcium and the heart Minisymposium. Medical University of Graz (Graz, Austria)
- Training in Multiple Births (Zurich, Switzerland)

MAY

- 18-20 FMSS Congress 2013 (Tel Aviv, Israel)
- 19 - 24 32nd Annual Meeting IFMSS (Jerusalem, Israel)
- 21 XXXII Congreso Nacional Sociedad Española de Ginecología y Obstetricia (Tenerife, Spain)

JUNE

- 4 17th International Conference on Prenatal Diagnosis and Therapy (Lisbon, Portugal)
- Ultrasound Meets Magnetic Resonance (Wien, Austria)
- 19 Congreso nefrología pediátrica (Cartagena, Spain)

- 20 7th International Conference on Functional Imaging and Modeling of the Heart (London, UK)

- 23-27 12th World Congress in Fetal Medicine (FMF) (Marbella, Spain)

JULY

- 1 ETH Zurich (Zurich, Austria)
- 13 X Curso Internacional de Medicina Fetal COMEGO
- 21-26 International Congress of Physiological Sciences (IUPS). (Birmingham, UK)

AUGUST

- 9-10 I Congreso Internacional de Ultrasonido en Obstetricia (Lima, Peru)
- 15-17 Congresso Latinoamericano de Medicina Fetal 2013 (São Paulo, Brazil)
- 30-1 2nd International Congress of the Society of Fetal Medicine (Hyderabad, India)

SEPTEMBER

- 6-9 ISUOG 23rd World Congress 2013 (Sydney, Australia)
- 3-6 ALBA User Meeting 2013 and VI AUSE Conference (Cerdanyola, Spain)

OCTOBER

- 1-4 Workshop on 3D Solutions in Cryo-Electron Microscopy, 3rd edition (Barcelona, Spain)
- 2-3 XXVI Congreso de Neonatología y Medicina Perinatal 2013 (Barcelona, Spain)
- 10-11 Jaarcongres - Vlaamse Vereniging voor Obstetricie en Gynaecologie (Genk, Belgium)
- Meeting of the Swedish Society of Perinatology (Sweden)

NOVEMBER

- 15-16 I Simposio Internacional de Medicina Materno Fetal CEDIUL (Barranquilla, Colombia)

DECEMBER

- 1 XXXIV Congreso Chileno de Obstetricia y Ginecología - Sociedad chilena obstetricia y ginecología (Viña del mar, Chile)

RESULTS

Grants, Stays and Thesis

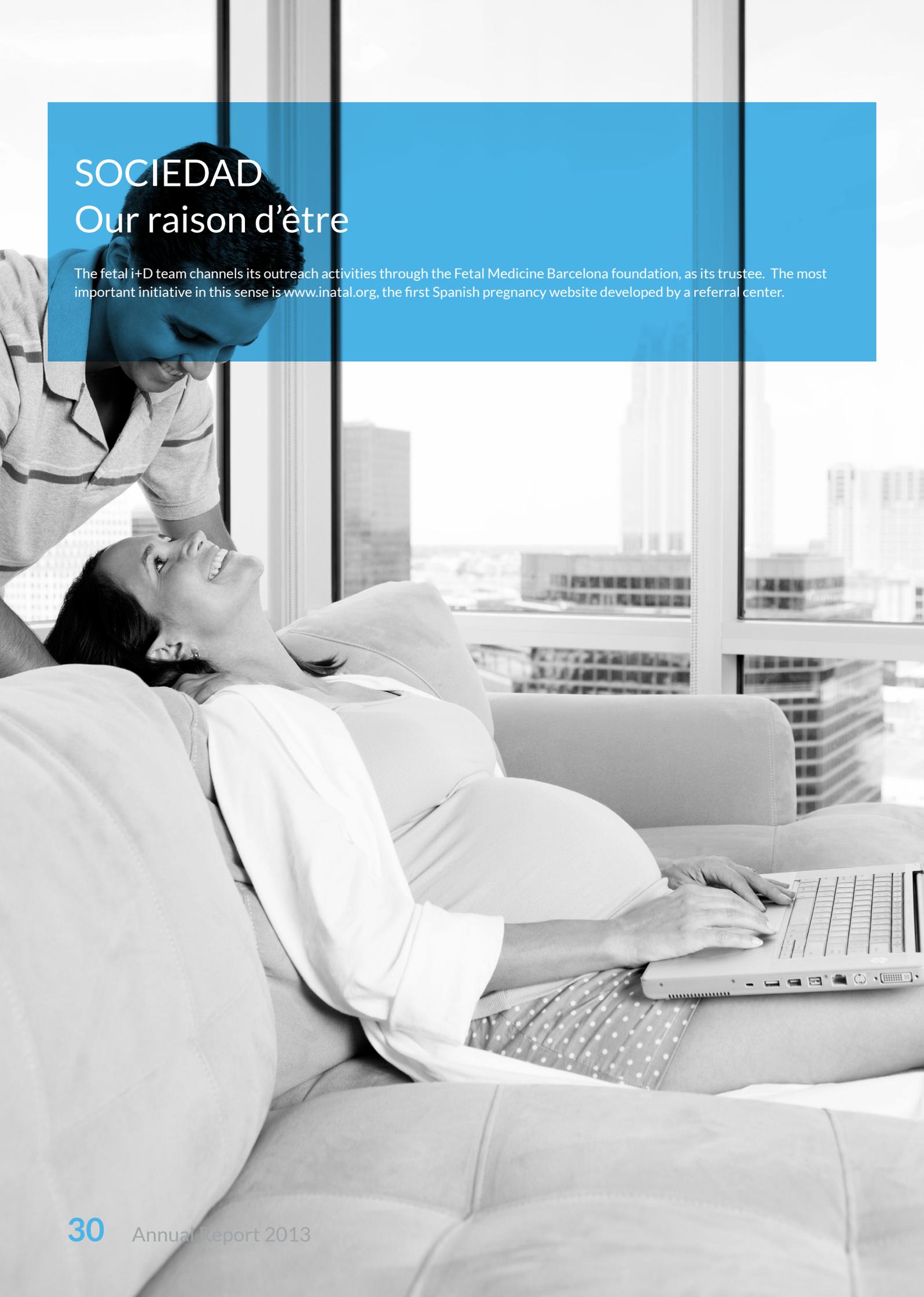
Academic results

Grants, stays and thesis

PHD THESIS			
Candidate	Title	Directors	Date and place
Stefan Savchev	Development of new predictors of adverse outcomes in fetal growth restriction	Eduard Gratacós, Francesc Figueras	04.07.2013 UB
Mónica Cruz	Fetal cardiovascular dysfunction in intrauterine growth restriction as a predictive marker of perinatal outcome and cardiovascular disease in childhood.	Eduard Gratacós, Fatima Crispi	30.10.2013 UB

GRANTS			
Awarded to	Grant type and amount	Awarded by	Duration
Brenda Valenzuela	Ayudas destinadas a universidades, centros de investigación y fundaciones hospitalarias para la contratación de personal investigador novel (FI-DGR) 33.000,00 €	AGAUR	3 años

RESEARCH STAYS			
Researcher	Aim	Place	Duration
Miriam Illa	Getting to know the neurophysiological bases of animal behaviour and neuroconductual and cognitive tests applied to animal models.	División de Neurociencias de la Universidad de Pablo Olavides (Sevilla)	January 2013
Emma Muñoz	Diffusion MRI image processing for connectome obtaining and analysis. Use of this technique for the analysis of the changes in brain organization in IUGR children.	Signal Processing Laboratory (LTS5), École Polytechnique Fédérale de Lausanne (EPFL)	July - October 2013
Mónica Cruz	International stay to obtain an European mention in the medicine doctorate.	Fetal Medicine Foundation (FMF)	Juny-August 2013
Anna González	Learning basic cardiology techniques in order to apply them in animal models and complement the PhD thesis.	Cardiac electrophysiology unit, Graz University (Austria)	March - May 2013
Magda Sanz	Advanced knowledge in neurosonography and postnatal development.	Tel Aviv Souraski medical center (Israel)	December 2013



SOCIEDAD

Our raison d'être

The fetal i+D team channels its outreach activities through the Fetal Medicine Barcelona foundation, as its trustee. The most important initiative in this sense is www.inatal.org, the first Spanish pregnancy website developed by a referral center.



2,5M
visits

80
countries

4000
social media
users

inatal
numbers

inatal Health begins before birth

In its first year, inatal has received more than two and a half million visits from users in more than 80 countries.

During pregnancy, women undergo great changes, which may lead to an enormous amount of questions – often arisen in between medical appointments - that cannot always be properly answered online.

In light of this need for rigorous and unbiased information about health during pregnancy, the Fetal Medicine Barcelona foundation launched in February 2013 inatal, the first interactive pregnancy website developed together with a referral center; through inatal, the fetal i+D team aimed to bring science and society together, spread reliable, up-to-date knowledge about pregnancy and create an online support community for pregnant women.

In its first year, inatal has received more than two and a half million visits from users in more than 80 countries. The website has not only grown in terms of visits, but also contents. Throughout the past months, reference sections such as “Week by week”, Consultations and Symptoms have been expanded, and new sections related to Birth, Postnatal and Breastfeeding have been added. inatal’s forums, moderated by fetal i+D specialists, have also been busy during this time.

However, the real raison d’être behind inatal are its users. Therefore, among the 2014 projects the main highlights are the creation of inatal’s own crowdfunding platform for fetal medicine research projects, and the launching of a new mobile app that will allow the future mum to monitor her pregnancy.

www.inatal.org

fetal i+D in the spotlight

Fetal medicine is an emerging field increasingly featured in the media, as shown by the rise in related news registered in 2013. With more than 250 media appearances, the fetal i+D research group positions itself as the Spanish reference in fetal research, surgery and therapy.

Among this year's news, the story of Gonzalo, made public in May 2013, stands out by itself. Gonzalo was suffering from congenital high airway obstruction syndrome (Chaos) - a rare condition which was preventing his lungs from expelling fluid through the trachea and causing his heart to fail. The outcome seemed inevitable, but our surgical team - in collaboration with HSJD neonatologists- performed the world's first successful operation to remove the obstruction and the baby - now a year old - sustained no brain damage as a result of the operation. In October 2013, Eduard Gratacós received an "Ideas Innovadoras 2013" award from Diario Médico for the surgical procedure, a great success for both the fetal medicine field and the fetal i+D team.

Halfway through the year, her Majesty Queen Sofia of Spain gave Eduard Gratacós the certificate of the research grant awarded by Mutua Madrileña Foundation for an innovative project about the cardiovascular function in twins who survived a twin-twin transfusion syndrome.

CIRUGÍA FETAL

Médicos españoles realizan con éxito una operación pionera a un feto de 21 semanas aquejado de una obstrucción de laringe que le condenaba a una vida con graves secuelas o, incluso, a la muerte

Gonzalo, salvado en el vientre de su madre

ANGELES LÓPEZ / Madrid
Los moñitos de Gonzalo lo dicen todo. Es un niño sano y feliz. Algo que, para sus 10 meses de vida, no debería ser infrecuente de no ser por la enfermedad congénita con la que creció dentro del vientre de su madre y que le había condenado a una muerte más que probable. Destino que médicos de Barcelona han conseguido evitar con la primera operación en el mundo para la obstrucción laringea congénita, la patología de Gonzalo, una malformación rara que se da en uno de cada 40.000 embarazos.

Ayer se hizo público, en rueda de prensa, el éxito logrado con esta operación. Tanto padres como médicos mostraron orgullosos a un sonriente Gonzalo y lo hicieron en el Hospital Sant Joan de Déu de Esplugues (Barcelona), que junto con el Hospital Clinic llevaron a cabo la intervención, cuando la mujer estaba embarazada de 21 semanas.

Para esta pareja se trataba de su primer embarazo, y fue en el Hospital de Cartagena donde los médicos sospecharon de la existencia de un problema. «Nos llamaron y nos



Juan Francisco sostiene en brazos a su hijo Gonzalo, operado hace 10 meses en el vientre de su madre. EFE

endoscopio especial, de 3 milímetros de diámetro, abrieron la laringe, y eliminaron la membrana o tabique. Después, limpiaron los pulmones de las secreciones acumuladas.

«Fue muy difícil porque la madre tenía la placenta en la parte anterior del vientre, el feto estaba muy inflado y además nos daba la espalda. Finalmente lo dormimos, con un anestésico intramuscular, lo giramos y a través de la tráquea llegamos a la laringe», explicaron los médicos en rueda de prensa.

El padre del bebé, Juan Francisco, declaró ayer que «llegamos sin ninguna esperanza. En Cartagena nos dijeron que la situación era muy grave y aquí nos dieron una esperanza y una alegría», y subrayó que «todo fue tan rápido que no tuvimos mucho tiempo para asimilar nada».

A las 48 horas de la operación, la madre ya tenía el alta médica y, una semana después, viajó de nuevo hasta Cartagena. «Al día siguiente de la operación ya vimos que sus pulmones estaban menos hinchados y, unos días más tarde, el fallo cardíaco había revertido», afirma Gratacós.



La Fundación Mutua Madrileña premia la investigación a Espanya

En España se realizan 300 intervenciones de cirugía fetal al año

Las operaciones intrauterinas han dejado de ser un tratamiento experimental. Muchas patologías se solucionan gracias a la cirugía fetal. En España se realizan más de 300 intervenciones al año, la mayoría en el Hospital Clinic de Barcelona, un referente a nivel internacional. Tras su irrupción a principios del año 2000, la cirugía fetal se ha consolidado como una opción terapéutica segura, y cada vez es mayor el número de patologías complejas que se pueden abordar, ya sean de columna, pulmonares, cardíacas o neoplásicas, la extirpación de una masa tumoral.

ara farem 1.000 diaris

6

grans avenços mèdics

De la donació de cèl·lules mare a la possibilitat de ser mare sense ovaris passant per la creació d'un feto funcional per a cèssers humans: un repàs del progrés durant els últims tres anys de la ciència aplicada a la medicina

4. **HALVAR EN LA VENTRA DE LA MADRE**

5. **EL PRIMER FETO CON UN CORAZÓN EN LA ESPALDA**

6. **EL PRIMER FETO CON UN CORAZÓN EN LA ESPALDA**

UNA #tincunaidea

Tinc una idea - Persones: Eduard Gratacós, el primer metge d'un nadó

28 feb. 2013

«Vore més sobre "Tinc una idea - Persones: Eduard Gratacós, el primer metge d'un nadó"»

Parir en la bañera

La sala de partos de la Maternitat del Clinic facilita que el niño nazca en el agua

El centro opta por nacimientos más íntimos y con menos intervención médica

La Maternitat del Clinic de Barcelona ha inaugurado una sala de partos que facilita que el niño nazca en el agua. Se trata de un espacio más íntimo y con menos intervención médica que el tradicional sala de partos.

El presidente de la sala de partos, el doctor Eduard Gratacós, ha explicado que se trata de un espacio más íntimo y con menos intervención médica que el tradicional sala de partos.

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El precedente CALMANTE DEL DOLOR LUMBAR

El feto que quedaba en la sala de partos era un feto de 21 semanas de gestación que sufría de una obstrucción de laringe congénita. Los médicos de Barcelona realizaron una operación pionera para eliminar la obstrucción de la laringe.

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EDUCATION

Maternal-fetal medicine training

fetalMed PhD, the first Erasmus Mundus joint doctoral programme in Fetal Medicine, constitutes the main educational project currently linked to fetal i+D. However, since 2013 the research group carries out its renowned fetal medicine training activities for professionals through fetal i+D EDUCATION, one of the working areas of the Fetal Medicine Barcelona foundation.

fetalMed PhD Erasmus Mundus

The first international doctorate in fetal medicine



"The programme offers a lot of training opportunities beyond the doctorate itself, it is a true specialization"
Tri Rahmat Basuki, MD (Indonesia)

"Each candidate follows a personal career development plan; it is difficult to find something like this nowadays"

Mérida Rodríguez, MD (Cuba)

"International mobility is one of the most attractive points of the programme, the perfect complement to the training"

Gülçin Gumus, Biogist (Turkey)

fetalMed PhD aims to promote a new generation of transdisciplinary researchers who are empowered to work and develop new products and solutions for different sectors, including academia, industry and society.

The Erasmus Mundus Joint Doctorate in Fetal and Perinatal Medicine fetalmed-PhD is an innovative research and training programme allowing to achieve an internationally recognized PhD degree on fetal medicine. This programme is offered by a unique consortium of three European centres of excellence on Fetal and Perinatal Medicine based in Barcelona (Fetal i+D Fetal Medicine Research Center, Barcelona University, Spain), Leuven (Leuven University, Belgium) and Lund (Lund University, Sweden).

fetalMed PhD aims to promote a new generation of transdisciplinary researchers who are empowered to work

and develop new products and solutions for different sectors, including academia, industry and society.

Furthermore, fetalMed PhD wants to invest in the capacity building of institutions and people all over the world through the creation of an international network and the development of collaboration projects between the consortium and the universities and research centers of the doctoral candidates.

fetalmed-em.eu

fetal i+D EDUCATION

Training in Maternal-fetal Medicine



fetal i+d EDUCATION is a project that started years ago, but whose main objective meets with those of the Fetal Medicine Barcelona foundation: transferring knowledge of fetal medicine through specialized education and training.

The fetal i+D EDUCATION website offers on-site and virtual high-quality courses in different aspects of Fetal Medicine. The contents of the courses reflect a 15-year experience in high-level clinical practice, teaching and advanced research in fetal medicine and therapy of fetal i+D, one of the largest referral centers of fetal medicine in the world.

Our courses cover a wide range of levels, and deal with the most important topics in the fetal medicine field. With them, we also fulfill a social purpose: all profits are set aside to award grants for underprivileged students, so that knowledge can be spread far and wide.

2013 has been a busy year for fetal i+D EDUCATION in terms of consolidation and development of new projects and ideas for the future.

On the one hand, the amount of available on-site and online courses has raised significantly; consequently, the number of students and registered users in

our educative platform has increased exponentially.

On the other hand, our network of contacts has been expanded thanks to the development of collaboration agreements with the main OBGYN associations of Latin America that will facilitate the access of their members to our courses and lay the ground for the coorganization of international events in 2014.



CONTINUOUS ASSESSMENT

in all our courses, including the issue of an official certificate at the end



HIGH SPECIALIZATION

in Maternal Fetal Medicine, from Basic Cycle courses to Advanced courses on the latest advances in the field

WORLDWIDE RECOGNITION

by the most renowned international OBGYN associations (ISUOG, FMF, LatinAmerican societies...)



INNOVATIVE TEACHING METHODS

based on practical learning through real cases, clinical algorithms and interactive sessions with other students in our virtual platform



EXCELLENCE FACULTY

specialists with a wide clinical and research experience, frequent speakers at international events



GRANTS AND AGREEMENTS

with the main OBGYN international associations. Regular call for grants to cover course fees



“When things are repeatedly done so well, it is not by chance, but because of excellence. Congratulations.”

M. GONZÁLEZ, alumno Marbella (España)



EDUCATION

ACKNOWLEDGEMENTS

Collaborators and funders



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Collaborators and funders

We are not alone in our research of prenatal pathologies, and that is why our growth as a group and referral center in the south of Europe would be impossible without the development of collaboration agreements and common projects with other referral hospitals, universities and companies both at a national and international level.

Also, and specially taking into account the current economical context, it would be impossible to reach our goals without the funding required to carry out our excellence research projects. Therefore, we would also like to thank all financial support received from public and private institutions, as well as from private individuals, which has allowed us to carry on with our research against prenatal anomalies.

NATIONAL

- Universitat de Barcelona
- Hospital de la Santa Creu i Sant Pau
- Institut Català de Ciències Cardiovasculars
- Parc Científic de Barcelona
- Universitat Pompeu Fabra
- Universidad Politécnica de Cataluña
- ICFO, Instituto de Ciencias Fotónicas
- Universidad de Santiago de Compostela
- Universidad de Navarra
- Centro de Investigación Príncipe Felipe, Valencia
- Universidad Pablo de Olavide, Sevilla
- Universidad de Jaén
- Instituto de Investigación en Bioingeniería de la Universidad de Zaragoza
- Fundación Jimenez Díaz
- Hospital de Terrassa
- Hospital de Manresa
- Hospital Puerta del Mar, Cádiz
- Hospital Clínico Universidad de Chile, Santiago de Chile
- Hospital La Paz, Madrid
- Hospital Sant Joan de Déu

COMPANIES

- SIEMENS
- KARL STORZ
- Rusell & Reynolds
- BioTalentum
- CIBER-ER
- TNO
- Transmural Biotech (Spin-off)

INDIVIDUALS

- Alba Moret
- Emanuela Cribio

INTERNATIONAL

- Consorcio Eurofoetus
- University Hospitals Leuven, Bélgica
- Cerebra Foundation for the Brain Injured Child, Wales
- King's College Hospital, London
- Hospital Necker
- Enfants Malades, Paris
- University of Lund
- Thrasher Research Fund, Salt Lake City
- University of California, San Francisco
- Alpert Medical School of Brown University,
- Providence Children's Hospital of Philadelphia, Philadelphia
- Hadassah-Hebrew University Medical Centers, Jerusalem
- Tel Aviv University
- Edith Wolfson Medical Center
- Consejo Nacional de Ciencia y Tecnología (CONACyT)
- Karolinska Institute
- École Polytechnique Fédérale de Lausanne
- Cambridge University
- Imperial College, Londres University Hospital Hradec Kralove
- UZ Leuven
- University of Tennessee Health Science Center, Memphis, Tennessee, USA.
- Sahlgrenska University Hospital Gotheburg
- St Petersburg Hospital
- KK Women's & Children's Hospital, Singapur
- Royal Prince Alfred Hospital, Sydney
- Hospital Barranquilla - CEDIUL
- University of Wisconsin, Madison, Wisconsin





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IDI BAPS

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D'Investigacions
Biomèdiques
August Pi i Sunyer

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