CURRICULUM VITAE - Jose Alegre, MD; PhD

FULL NAME: Dr Jose Alegre
DEPARTMENT: Internal Medicine Division, CFS/ME Clinical Unit
Position: Clinical Assistance
ORGANIZATION: Vall d´Hebron University Hospital
ADDRESS: Pg de Vall d´Hebrón 119-129
CITY/TOWN: Barcelona
POSTCODE: 08019
COUNTRY: Spain
E-mail address: jalegre@vhebron.net

A.CAREER HISTORY (CURRENT/MOST RECENT FIRST)

1.From 06/2002. To -
Position: Psysician
Organisation: Instituto Català de la Salut

2.From 09/2000. To -
Position: Associate Professor
Organisation Medicine Department. School of Medicine. Autonoma University of Barcelona. Spain

3. From 06/2009 to 06/2009
Position: Director of Summer University Course
Organisation. University of Teruel. Spain

4. From 09/2006 to 09/2008
Position: Director of postgraduate course
Organisation. Medicine Department. School of Medicine. Autonoma University of Barcelona. Spain

5. From 09/2010 to 09/2014

Position: Professor in Postgraduate Course
Organisation. University of La Coruña. Spain

6- From 09/2013 to -
Position: Professor in Postgraduate Course
Organisation.University of Barcelona. Spain

B. EDUCATION /TRAINING

1. INSTITUTION

School of Medicine, Autonoma University of Barcelona, Spain

DEGREE: B.S
COMPLETION DATE: 06-1982
FIELD OF STUDY: Medicine

2. INSTITUTION

School of Medicine, Autonoma University of Barcelona, Spain

DEGREE: PhD
COMPLETION DATE: 12-1990
FIELD OF STUDY: Medicine

3. INSTITUTION
Vall d´Hebrón University Hospital. Barcelona, Spain
DEGREE. Resident
COMPLETION DATE: 06/1990
FIELD OF STUDY: Internal Medicine.

4. INSTITUTION
International Association for IACFS/ME Chronic Fatigue
Syndrome DEGREE. Psysician. 23 AMA PRA Category 1 CME

COMPLETION DATE: 09/2011
FIELD OF STUDY: Chronic Fatigue Syndrome

C.SOURCE(S) OF PERSONAL SALARY SUPPORT

Official Internal Medicine Psysician in Vall d´Hebrón Hospital. Barcelona. Spain

D.CAREER CONTRIBUTIONS

From the perspective of my training in Internal Medicine, with a multisystem vision and a multifactorial character and applied to the study of chronic fatigue, I have always been enthusiastic about the constitution of a Clinical Unit of Excellence in a University Hospital to optimize the clinical diagnosis, The evaluation of comorbid phenomena, the stratification of fatigue and treatment based on clinical and symptomatic evidence.

In the teaching field, from the Medicine Department of the Autonomous University of Barcelona, coordinate the training in degree, postgraduate and continuing training of health professionals.

From the Foundation of Affected and Affected Fibromyalgia and Chronic Fatigue Syndrome start the training of patients, associations and foundations of CFS/ME patients.

From the Department of Health of the Generalitat of Catalonia, coordinate care circuits, dissemination, teaching and research in Chronic Fatigue Syndrome.

From the Group of chronic fatigue of the research institute Vall d'Hebron of Barcelona, coordinate the basic and clinical research.

1. The clinical profile, comorbid phenomena, the stratification of fatigue and the discovery of new therapeutic targets in treatment of patients affected by CFS/ME.

Chronic fatigue syndrome is a well defined clinical entity through the diagnostic criteria established by the CDC in 1994, which mainly affects middle-aged women with a very

characteristic personality profile with characteristics of perfectionism, middle studies Superior in more than 50% and that conditions a severe functional disability in the same, inactive standards at the time of diagnosis more than 60% of patients affected by CFS. In the CFS study, it is important to evaluate the presence of comorbid phenomena in the form of fibromyalgia, dry syndrome, psychopathological disorders, ligamentous hyperlaxity and various forms of hypersensitivity, among others, which will cause a worsening of the quality of life of these patients. In the stratification of fatigue, the existence of validated questionnaires to quantify fatigue, pain, anxiety-depression and quality of sleep and of life, where high values of fatigue, pain, Anxiety-depression and quality of sleep and very low quality of life. On the other hand, the practice of ergometric tests for the study of intolerance to physical exercise, emphasize the severe decrease in oxygen consumption after the maximal physical exercise test and neuropsychological batteries for the study of cognitive dysfunction, with alterations In the processing speed of information and memory. Regarding treatment, we have at this moment evidence in cognitive-behavioral therapy and programmed physical exercise therapy and through the basic studies in genoproteomics, lymphoid expression, redox and mitochondrial metabolism among others, we hope to have future therapeutic targets such as alpha-1-antitrypsin, to modify the clinical course of chronic fatigue syndrome, which at present is towards chronicity.

2. The Biological Challenges of ME/CFS: Innate Immunity, Mitochondrial Dysfunction, Exercise Intolerance and Fatigue

In the last 10 years, basically our group has focused on the mitochondrial function, bioenergetics and OS as well as the response of innate immunity and exercise intolerance in CFS/ME. These areas may yield a diagnostic test or biomarker for CFS/ME. This may also provide clues to the pathophysiology of the condition and even to future treatments.

Peer-reviewed publication and other research outputs

1. Castro-Marrero J, Saez-Francas N, Santillo D, **Alegre J.** Treatment and management of Chronic Fatigue Syndrome/Myalgic Encephalomyelitis: all roads lead to Rome. Br J Pharmacol 2017;174:345-369. IF. 5.259. Q1.

This review discusses the current status of the topic of pharmacological and non-pharmacological treatment in the CFS/ME, which can serve as a guide for many professionals who diagnose and treat patients affected by CFS.

2. Castro-Marrero J, Cordero MD, Sáez-Francàs N, Jimenez-Gutierrez C, Aguilar-Montilla FJ, Aliste L, **Alegre-Martin J**. Could mitochondrial dysfunction be a differentiating marker between chronic fatigue syndrome and fibromyalgia? Antioxid Redox Signaling 2013;19:1855-60.IF.7.189.Q1.

This work demonstrates the intracellular alterations of oxidative stress markers in CFS, of great relevance in the pathogenesis of CFS

3. Castro-Marrero J, Cordero MD, Segundo MJ, Sáez-Francàs N, Calvo N, Román-Malo L, Aliste L, Fernández de Sevilla T, **Alegre J**. Does Oral Coenzyme Q10 Plus NADH Supplementation Improve Fatigue and Biochemical Parameters in Chronic Fatigue Syndrome? Antioxid Redox Signaling 2015;22:679-85.IF.7.189. Q1.

It is verified that after the administration of coenzyme Q10 and NADH, the imbalance of oxidative and mitochondrial stress markers is restored in patients affected by CFS.

4. Castro-Marrero J, Sáez-Francàs N, Segundo MJ, Calvo N, Aliste L, Fernandez de Sevilla T, **Alegre J**. Effect of Coenzyme Q10 plus NADH co-supplementation on maximal heart rate after exercise test in CFS patients: a randomized controlled trial. Clin Nutr 2016;35:826-834. IF.4.476. Q1.

It is observed that after administration of these nutritional products, not only modulates the imbalance of oxidative and mitochondrial stress, but also improves fatigue

5. Docampo E, Escaramis G, Gratacos M, Villatoro S, Puig A, Kogevinas M, Collado A, Carbonell J, Rivera J, Vidal J, **Alegre J**, Estivill X, Rabionet R. Genome-wide analysis of single nucleotide polymorphisms and copy number variants in fibromyalgia suggest a role for the central nervous system. Pain 2014;155:1102-1109. IF. 5.694. Q1.

The existence of two clearly differentiating groups of genes in fibromyalgia, a comorbid phenomenon frequently associated with chronic fatigue syndrome, is verified.

6. Marta Curriu, Jorge Carrillo, Marta Massanella, Josepa Rigau, **José Alegre**, Jordi Puig, Ana M Garcia-Quintana, Eugènia Negredo, Bonaventura Clotet, Cecilia Cabrera and Julià Blanco. Screening NK-,B- and T-cell phenotype and function in patients suffering from Chronic Fatigue Syndrome. JTM 2013;11:68-81. IF.3.460. Q1.

We describe, through lymphoid phenotype, eight differentiating proteins between patients affected by CFS and healthy controls.

7. Docampo E, Collado E, Escaramis G, Carbonell J, Rivera J, Vidal J, **Alegre J**, Rabionet R, Estivill X. Cluster analysis of clinical data identifies fibromyalgia subgroups.Plos One 2013;8:e74873-74880. IF.3.73. Q1.

The clinical profile of patients with fibromyalgia, a common comorbid phenomenon in CFS patients, is verified.

8. Suarez A, Guillamon E, Roig T, Blazquez A, **Alegre J**, Bermudez J, Ventura J, Garcia Quintana AM, Comella A, Segura R, Javierre C. Nitric oxide metabolite production during exercise in chronic fatigue syndrome: a case-control study. J Women Health 2010;19:1073-1078. IF.2.008.Q2.

The importance of nitric oxide in the pathogenesis of exercise intolerance in CFS is demonstrated.

9. Alijotas J, **Alegre J,** Fernández-Sola J, Cots JM, Panisello J, Peri JM, Pujol R; Working group of Chronic Fatigue Syndrome. Consensus of diagnosis and treatment of chronic fatigue síndrome.Medicina Clinica (Barc) 2002; 118:73-76. IF. 1.254.Q2.
First document in Spain of consensus on the diagnosis and treatment of CFS.

10. Naia Saez-Francas, Sergi Valero, Natalia Calvo, Montserrat Goma-i-Freixanet, **José Alegre**, Tomas Fernández de Sevilla, Miguel Casas. Chronic fatigue syndrome and

personality: A case-control study using the alternative five fator model. Psychiatry Research 2014;216:373-378. IF. 2.54. Q2.

The personality profile of the affected CFS patient is defined

11. Naia Sáez-Francàs Ph.D, Natalia Calvo, Ph.D.; **José Alegre**, M.D., Ph.D.; Jesús Castro-Marrero, Ph.D.; Nicolás Ramírez, M.D., Ph.D.; Hernández-Vara Jorge, M.D., Ph.D.; Miguel Casas, M.D.,Ph.D. Childhood trauma in Chronic Fatigue Syndrome: focus on personality disorders and psychopathology. Comprehensive Psychiatry 2015;62:12-19.IF. 2.252. Q2.

The importance of traumatic antecedents of psychological nature in patients affected by CFS.

12. Naia Saez-Francas, **Jose Alegre**, Natalia Calvo, Jose Antonio Ramos-Quiroga, Eva Ruiz, Jorge Hernandez Vara, Miguel Casas. Attention-deficit hyperactivity disorder in chronic fatigue syndrome patients. Psychiatry Research 2012;200:748-753.IF.2.524. Q2.

Among the comorbid conditions in CFS/ME from the psychopathological point of view emphasizes the hyperactivity with deficit of attention.

13. Valero, S; Sáez-Francàs, N; Calvo, N; **Alegre J**; Casas M. The role of Neuroticism,Perfectionism and Depression in Chronic Fatigue Syndrome. A Structural Equation Modeling approach. Compr Psychiatry 2013;54:1061-7.IF. 2.252. Q2.

Within the comorbid illness in the CFS, from the psychopathological point of view is important neuroticism, perfectionism and depression.

14. Santamarina-Perez P, Freniche V, Eiroa-Orosa FJ, Llobet G, Saez N, **Alegre J**, Jacas C. The role of depression in cognitive impairment in patients with chronic fatigue syndrome. Med Clin (Barc) 2011;12:239-243. IF.1.254. Q2.

The importance of the comorbid psychopathological phenomenon of depression in cognitive impairment in CFS.

15. Blazquez A, **Alegre J,** Ruiz E. Women with chronic fatigue síndrome and sexual dysfunction sexual.

16. Alicia Blazquez, **José Alegre**. Family and partner facing a chronic disease: chronic disease: chronic fatigue syndrome. Am J Family Therapy 2013;41:46-62.IF.0.352. Q2.

Review on the implication of CFS dysfunction in the family nucleus

17. Monica Faro, Naia Saez, Jesus Castro-Marrero, Luisa Aliste, Antonio Collado, **Jose Alegre**. Impact of the fibromialgia in the chronic fatigue syndrome. Med Clin (Barc) 2014;142:519-525. IF.1.254. Q2.

The impact of the comorbid phenomenon of fibromyalgia in CFS.

18. Ruiz E, **Alegre J,** Garcia Quintana AM, Aliste L, Blazquez A, Fernández de Sevilla T. Chronic fatigue syndrome: study of a consecutive series of 824 cases assessed in two specialized units. Rev Clin Esp 2011;211:385-390.IF.2.000. Q3.

The clinical profile of patients with chronic fatigue syndrome is described.

19. Santamarina-Perez P, Francisco José Eiroa-Orosa, Amanda Rodriguez- Urrutia,d Adil Qureshi, **José Alegre**. Neuropschological impairment in females patients with chronic fatigue syndrome: A preliminary study. Applied Neuropsychology 2014;21:120-127. IF. 1.173.Q3.

We propose a neuropsychological battery for the study of cognitive dysfunction in CFS

20. **Alegre J,** Roses JM, Javierre C, Ruiz Baques A, Segundo MJ, Fernández de Sevilla T.Nicotinamide adenina dinucleside (NADH) in patients with chronic fatigue síndrome. Rev. Clin. Esp 2010;210:284-288.IF. 2.000. Q3.

Improvement of cardiovascular parameters and fatigue in patients with CFS who have received NADH are observed.

FINANCIAL RESEARCH PROJECTS

1. Research Project, granted by the General Directorate of Scientific and Technical Research (DGICYT). PM88-0220. "Value of serum determination of bile acids in the early detection of hepatotoxicity by tuberculostatics" 1989 PI. Dr. Tomas Fernandez de Sevilla Ribosa. Colaborate Investigator (CI)

2. Research Project, funded by the Agency of Evaluation of Medical Technology in the 2002/2003 call entitled "Randomized clinical trial to evaluate the effectiveness of a multifactorial intervention to reduce hospitalizations and improve the quality of life of patients with heart failure ". PI Carlos Brotons Cuixart.CI.

3. Research Project, funded by Health Research Fund, FISS 93/0456. Clinical and immunological study of bacterial pneumonia in patients with human immunodeficiency virus infection. PI.CI.

4.Research Project, funded by Mapfre Medicine Foundation. "Cost-effectiveness study of the determination of polymorphonuclear elastase in pleural fluid for the differentiation of pleural and non-infectious pleural effusions. PI. Professor Jordi Suriñach Caralt.CI.

5. Research Project, funded by Health Research Fund FISS 93/0759. Clinical study and neutrophil markers in bacterial pleural effusions. PI.

6.Research Project, funded by Health Research Fund FIS 96/0977. Study of neutrophil chemotactic factors (interleukin-1, tumor necrosis factor and interleukin 8) in bacterial pleural effusions. PI.

7. Research Project, funded by Health Reseach Fund FIS 98/0747, funded by the Health Research Fund, entitled 'Study of the association of the pleural fibrinolysis system (activators and plasminogen inhibitors) and markers of neutrophilic inflammation in bacterial pleural effusions PI.

8. Research Project, funded by Health Research Fund FIS 99/0812, entitled 'Study of the association between the balance of metalloproteinases and their tissue inhibitors, the pleural fibrinolysis system and neutrophil activation markers in bacterial pleural effusions. '. PI.

9. Research Project, funded by Health Research Fund FIS 01/1408, entitled 'Study of angiogenesis and inflammatory response in the pathogenesis of complications of bacterial pleural effusions.'PI.

10.Research Project, funded by the Health Research Fund EC07 / 90479, under the title 'Clinical, randomized, controlled, parallel, double-blind trial to evaluate efficacy-safety of intrapleural alteplase vs. urokinase as a treatment of complicated complex and empyema. PI. Maria Carmen Aleman Llanso.CI

11. Research Project FMMA/ 14/2006, funded by Fundación Invest. Médica Mutua Madrileña, with the title 'Population-based registry of patients affected by chronic fatigue syndrome'. PI.

12. Red 2014 SGR 340, recognized by AGAUR, under the title 'Chronic Fatigue (GRE)'. From 2014 to 2016. PI.

13. Research Project COIB-2725-12, funded by Col·legi Oficial d'Infermers /Barcelona, under the title 'Clinical trial, randomized, controlled, parallel, to avoid the efficacy of two acupuncture techniques validity in health: Somatoacupuncture versus Auriculopuncture, As a treatment in patients diagnosed with Chronic Fatigue Syndrome. PI Ms. Conxita Jiménez Gutiérrez. CI.

14. Research Project PR (AG) 95/2008 with the title 'Assaig clinic for evaluating the effectiveness of the intervention of hell in the millora of the impact and the qualitat of life in the malat diagnose of the Chronic Fatigue Syndrome.', funded by the Barcelona College of Nursing.PI. Ms. Rosa Badia. CI.

15. Research Project, funded by the Health Research Fund PI051487. Protocol for the evaluation of functional reserve and physiological adaptation capacity in patients with chronic fatigue syndrome. PI. Dr. Ramón Segura Cardona. CI.

16. Research Project FMMA.2007, funded by Fundación Invest. Médica Mutua Madrileña. Study of nitric oxide metabolites during exercise in patients with chronic fatigue syndrome. Principal investigator. Dr. Casimiro Javierre. CI.

17. Research Project "Prevalence of XMRV in patients with HIV-1 infection". 241046/10. AIDS Foundation Fellowship - FIPSE. Principal investigator. Dr. Esteban Ribera Pascuet. CI.

18. Research Project 'Creation of a DNA bank for research on Fibromyalgia and Chronic Fatigue Syndrome.'. Funded by the foundation of patients affected by fibromyalgia and chronic fatigue syndrome

CURRENT AND RECENT RESEARCH FUNDING

1. H2020-funded European Network on Myalgic Encephalomyelitis (Chronic Fatigue Syndrome) (EUROMENE) – 2015- COST.

2.Clinical Assay file reference D3820C00005 and EudraCT No.: 2011-001986-41, titled 'Randomized, double-blind, placebo-controlled study to assess efficacy and The safety of NKTR-118 in patients with non-oncologic pain and opioid-induced constipation (EIO). And which was approved by the CEIC on 07/29/2011. Funded Funded by Astra Seneca Laboratory.

3. Clinical Assay, with reference of file VITAE 01-2012, titled 'Clinical trial, randomized, randomized, comparative, to evaluate the response in the variations of the maximum heart rate During the ergonometric test after the administration of Reconnect versus Placebo in the patient affected by chronic fatigue syndrome. Funded by Vitae Laboratory.

4. Clinical Assay, with reference of VITAE 2015. Randomized, randomized, comparative trial to assess improvement in fatigue, quality of life, sleep dysfunction, and neurovegetative alteration after administration of Reconnet versus placebo in patients with chronic fatigue syndrome. Funded by Vitae Laboratory.

5. Clinical Assay, with reference IC/LV/MEL-ZN/SFC. Clinical, unicentric, randomized, double-blind, comparative trial to evaluate the efficacy of melatonin and zinc administration vs placebo in reducing fatigue in chronic fatigue syndrome. Funded by Viñas Laboratory.

6. Investigation on the method for determination of elastase in blood of patients with chronic fatigue syndrome. Funded by Grifols Lab.

7. Activation pathways of inflammasome NLRP3, mitochondrial dysfunction and neuroimmune response after oral supplementation of Ubiquinone plus Selenium in CFS/ME patients. Funded by Pharmanord Laboratory.

OTHER MERITS

Director of 12 **research works** qualified with outstanding in Medicine Department in Autonoma University of Barcelona, Spain.
Director of 12 PhD **theses** qualified with cum laude.
8 **Awards** of Different Medical Societies in Spain.
1.Prize for the best oral communication of the XXV National Congress of the Spanish Society of Internal Medicine, Madrid November 2002. Ruiz E, Alemán C, Alegre J, J Monastery, Armandans LL, Vázquez A, Soriano T, Fernández de Sevilla T. Angiogenesis in the differentiation of complicated and uncomplicated paraneumonic pleural effusions.
2.Best Work Award presented at the conferences of Internal Medicine and Primary Care during 2005. For the study "Study of the scale of fatigue impact in 512 patients affected by chronic fatigue syndrome." Foundation of Affected and Affected Fibromyalgia and Chronic Fatigue Syndrome, Spanish Society of Internal Medicine and Novartis. Salamanca. October 2006.

3. Best Work Award presented at the Congresses of Internal Medicine and Primary Care during 2007. For the work "Differences in the cardioventilatory response to a maximum and supramaximal effort in patients diagnosed with chronic fatigue syndrome. Foundation of Affected and Affected Fibromyalgia and Chronic Fatigue Syndrome, Spanish Society of Internal Medicine and Novartis. Sitges, November 2007.

4. Best Work Award presented at the Congresses of Internal Medicine and Primary Care during 2008. For the work "SPECT cerebral basal and post-stimulation in the study of cognitive deterioration in chronic fatigue syndrome". Foundation of Affected and Affected Fibromyalgia and Chronic Fatigue Syndrome, Spanish Society of Internal Medicine and Novartis. La Coruña, 2008.

5. Best Ideas Award of the Year 2008. Instituted by Diario Médico. DNA bank for fibromyalgia and chronic fatigue syndrome. Foundation of affected and affected of fibromyalgia and syndrome of chronic fatigue.

6. AficroVall Award, convened by the Royal Academy of Medicine of Valladolid. 2009. Cognitive alterations in patients with chronic fatigue syndrome with and without psychiatric comorbidity.

7. Prize for the Best Oral Communication at the VI National Nursing Days in Internal Medicine "Development of a nurse approach program within a multidisciplinary framework of the patient diagnosed with chronic fatigue syndrome". Barcelona, November 2009.

8. Accesit Award "Young Researchers in Link Psychiatry", awarded by the Spanish Society of Psychosomatic Medicine on the occasion of the XLIII Congress. "Cognitive alterations in patients with chronic fatigue syndrome, Barcelona June 2009.

Member of the Scientific Committee of Fibromyalgia and Chronic Fatigue Syndrome Foundation of Spain since 2009.
Life member of the American Association of Chronic Fatigue Syndrome since 2014.
Member of the Committee of Fibromyalgia and Chronic Fatigue Syndrome. Health Department. Generalitat de Cataluña, Spain since 2015.

Director of ME/CFS Research Working Group Accredited as Emerging Group by the Generalitat de Catalunya, Barcelona, Spain. SGR 2014-2016. 2014 SGR 340.

Coordinator of the ME/CFS Research Group, constituted at the Autonomous University of Barcelona (AUB), registration nº: 145634410.

Member of the Psychopatology Study Group in ME/CFS patients, CFS Unit Vall d'Hebrón Hospital, Pshychiatry Service Vall d´Hebron de Barcelona.

Member of the FSGCDB Group (Spanish Fibromyalgia and ME/CFS Genetic Big Data Biobank, Foundation FF).

Collaborative Member of the Project "Pilot study of biomarkers of Heart Rate Variability and its correlation with fatigue, dysautonomia and sleep problems in ME/CFS patients", in conjunction with the UAB/UPC Research Park and the Foundation of the Football Club Barcelona.

MC member by Spain. Establishing a European platform for understanding and tacking ME/CFS. The EUROMENE Consortium. Coordinator. Rigas Stradina Universities. H2020 – PHC – 2016-2020.

Member of the Project "Study of the circadian rhythm of peripheral body temperature in Chronic Fatigue Syndrome: association with other symptoms of the disease. CHANCE Studio - Circadian rHythm ChroNiC fatigue temperatura, in conjunction with the UB Group of Circadian Rhythm Research of Barcelona.

Principal Investigator of 30 clinical trials
Referred to different publications in CFS / ME (Arthritis Rheumatology, PLoS One) Referee in valuation of research projects in national agencies

PATENTS GRANTED

Application number. P200930387. Use of alpha-1-antitrypsin for the preparation of medicaments for the treatment of chronic fatigue syndrome. Inventors: Dr. Ana Maria Garcia Quintana and Dr. José Alegre Martin. Applicant. Grifols SA. Date of receipt in the national application: June 30, 2009 and date of receipt in the international application: June 2010.

Patent No 10380071.0 – 2107. Use of alpha-1-antitrypsin for the preparations of drugs for the treatment of chronic fatigue syndrome. Inventors. Garcia Quintana, Ana, Alegre Martin, José, Propietor Grifols, SA. Date of filing 20.05.10.

Patent No US 2010/0331261 A1. United States Patent Application Publication. Use of alpha-1-antitrypsin for the preparation of drugs for the treatment of chronic fatigue syndrome. Inventors: Ana Garcia Quintana, José Alegre Martin. Pub. No: US 2010/0331261 A1. Pub. Date: Dec.30, 2010**.**

Details of any relevant previous experience of managing a resource, a technology or equipment

"Pilot study of biomarkers of Heart Rate Variability and its correlation with fatigue, dysautonomia and sleep problems in ME/CFS patients", in conjunction with the UAB/UPC Research Park and the Foundation of the Football Club Barcelona. This team is comprised of electronic engineers specialized in biomedicine and represents the technical support necessary to carry out the projects, always adapting to new technologies, based on the use of mobile devices (smartphones).

Study of the circadian rhythm of peripheral body temperature in Chronic Fatigue Syndrome: association with other symptoms of the disease. CHANCE Studio - Circadian rHythm ChroNiC fatigue temperature, in conjunction with the UB Group of Circadian Rhythm Research of Barcelona, using specific temperature sensors and actigrahy devices.