

## Joaquim Gea, MD, PhD

- Full Professor of Medicine & Human Physiology, Universitat Pompeu Fabra
- Dean, School of Medicine & Human Biology
- Head, Respiratory Medicine Department, Hospital del Mar Barcelona.



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### 1. ACADEMIC Background

- **Basic Medical Education, M.D.:** School of Medicine, University of Barcelona (UB) (1973-79).
- **Ph. D.** Degree obtained in the same University ("A with honors" 1989).
- **Specialist in Internal Medicine**, Hospital del Mar – Universitat Autònoma de Barcelona (1981)
- **Specialist in Respiratory Medicine**, Hospital Clínic, University of Barcelona (1985)

### 2. MAIN PREVIOUS POSITIONS

#### Patient Care

- **Resident in Pneumology**, Respiratory Medicine Department, Hospital Clínic (BCN) (1982-1985)
- **Attending Physician (staff)**, Respiratory Medicine Department, Hospital del Mar (1987-1993)
- **Head of the Lung Function Section**, Respiratory Medicine Department, Hospital del Mar (1993-2004)

#### Teaching

- **President of the Teaching Committee for Residents**, Hospital del Mar (1992-94).
- **Visiting Professor**, McGill University, Montreal, Canada (1994-95).
- **Director**. Branch of Clinical Research. **International Ph.D. Program**, Universitat Pompeu Fabra (UPF), Barcelona (1998-2004)
- **Director** of the Educational Program at the Spanish Network of Excellence for Respiratory Medicine RESPIRA (2003-2006)
- **Co-Director. Master in Respiratory Medicine**, UPF-UB (2007-2015)
- **Associate Professor**, Johns Hopkins University, Baltimore, USA (2009-2011)

#### Research

- **Group leader** in the Spanish Network of Excellence for Respiratory Medicine RESPIRA (2003-2006)
- **Chairman**, Research Committee. IMIM (2007-12)
- **Deputy Director**, Network of Excellence for Respiratory Diseases (CIBERES) (2011-2015)

### 2. CURRENT POSITIONS and ACTIVITIES

#### - Patient Care:

**Head**, Pulmonary Medicine Department. Hospital del Mar – IMIM (2004 until present)

#### - Teaching:

**Full Professor**, Physiology and Medicine. CEXS Dept, *Universitat Pompeu Fabra* (1999 until present)

**Member** of the Educational Council for Medicine studies (UPF-UAB), (2008 until present)

**Dean**, Faculty of Health Sciences (Medicine, Human Biology, Biomedical Engineering) (2011 until present)

#### - Research:

**Coordinator**, Respiratory and Muscle Research Unit (URMAR), IMIM (1989 until present).

**Group leader** in the Spanish Network of Excellence for Respiratory Medicine CIBERES (2006-2014).

### 3. RESEARCH

#### 3.1. Research Projects

A total of **66 grants**, including **4 projects** funded by the European Commission, as well as 8 from the Spanish Institute for Research in Health (FIS) and 4 from the Spanish Institute for Research in Science (Plan Nacional).

#### 3.2. Publications

- **235 Original Articles** and Reviews in peer review journals, and **51 book chapters**.

#### **Main Publications in the last 5 years (2011-2015, only in peer reviewed journals)**

1. Garcia-Aymerich J, Gómez FP, Benet M, ... Gea J et al. Identification and prospective validation of clinically relevant chronic obstructive pulmonary disease (COPD) subtypes. *Thorax* 2011; 66:430-7.

2. Barreiro E, Ferrer D, Sanchez F, ... [Gea J](#). Inflammatory cells and apoptosis in respiratory and limb muscles of patients with COPD. *J Appl Physiol* 2011; 111:808-17.
3. Rodríguez A, Lisboa T, Solé-Violán J, ... [Gea J](#) et al. Impact of non-exacerbated COPD on mortality in clinically ill patients. *Chest*. 2011; 139:1354-60.
4. Sarlabous L, Torres A, Fiz JA, [Gea J](#) et al. Evaluation of the respiratory muscles efficiency during an incremental flow respiratory test. *IEEE Eng Med Biol Soc (Conf Proc)* 2011; 2011:3820-23.
5. Reiter M, Twerenbold RR, Reichlin T, ... [Gea J](#) et al. Early diagnosis of acute myocardial infarction in the elderly using more sensitive cardiac troponin assays. *Eur Heart J* 2011; 32:1379-89.
6. Vogelmeier C et al.; POET-COPD group (... [Gea J](#) et al.). Tiotropium versus salmeterol for the prevention of exacerbations of COPD. *N Eng J Med* 2011; 364:1093-103.
7. Núñez B et al.; PAC-EPOC group (... [Gea J](#) et al.). Anti-tissue antibodies are related to lung function in chronic obstructive pulmonary disease.. *Am J Respir Crit Care Med* 2011; 183:1025-31.
8. Rodríguez DA, Kalko S, Puig-Vilanova E, ... [Gea J](#) et al. Muscle and blood redox status after exercise training in severe COPD patients. *Free Radic Biol Med* 2012; 52:88-94.
9. Schaub N, Reichlin T, Meune C, ... [Gea J](#) et al. Markers of plaque instability in the early diagnosis and risk stratification of acute myocardial infarction. *Clin Chem* 2012; 58:246-56.
10. Reiter M, Twerenbold R, Reichlin T, ... [Gea J](#) et al. Early diagnosis of acute myocardial infarction in patients with pre-existing coronary artery disease using more sensitive cardiac troponin assays. *Eur Heart J* 2012; 33:988-97.
11. De Batlle J, Sauleda J, Balcells E, ... [Gea J](#) et al. Association between  $\Omega 3$  and  $\Omega 6$  fatty acid intakes and serum inflammatory markers in COPD. *J Nutr Biochem* 2012; 23:817-21.
12. Barreiro E, Del Puerto-Nevado L, Puig-Vilanova E, ... [Gea J](#) et al. Cigarette smoke-induced oxidative stress in skeletal muscles of mice. *Respir Physiol Neurobiol* 2012; 182:9-17.
13. Femoselle C, Rabinovich R, Ausín P, ... [Gea J](#) et al. Does oxidative stress modulate limb muscle atrophy in severe COPD patients? *Eur Respir J* 2012; 40:851-62.
14. Orozco-Levi M, Coronell C, Ramírez-Sarmiento A, ... [Gea J](#). Injury of peripheral muscles in smokers with Chronic Obstructive Pulmonary Disease. *Ultrastruct Pathol* 2012; 36:228-38.
15. González-Candelas F et al.; CIBERESP Cases and Controls in Pandemic Influenza Working Group (....., [Gea J](#) et al.). Sociodemographic factors and clinical conditions associated to hospitalization in influenza A (H1N1) 2009 virus infected patients in Spain, 2009–2010. *Plos One* 2012; 7:e33139 (8 pages).
16. de Batlle J et al. ; PAC-COPD Study Group (... [Gea J](#) et al.). Cured meat consumption increases risk of readmission in COPD patients. *Eur Respir J* 2012;40:555-60.
17. Domínguez A et al.; CIBERESP Cases and Controls in Pandemic Influenza Working Group (....., [Gea J](#) et al.). Effectiveness of pandemic and seasonal influenza vaccines in preventing pandemic influenza-associated hospitalization. *Vaccine* 2012; 30:5644-50.
18. Pozo-Rodríguez F et al.; AUDIPOC Study Group (... [Gea J](#) et al.). Clinical audit of COPD patients requiring hospital admissions in Spain: AUDIPOC study. *PLoS One* 2012; 7:e42156.
19. Launes C et al.; CIBERESP Cases and Controls in Pandemic Influenza Working Group (... [Gea J](#) et al.). 2009 H1N1: risk factors for hospitalization in a matched case-control study. *Eur J Pediatr* 2012; 171:1127-31.
20. [Gea J](#), Casadevall C, Pascual S et al. Respiratory diseases and muscle dysfunction. *Expert Rev Respir Med* 2012; 6:75-90 (Review).
21. [Gea J](#). A drug therapy for muscle dysfunction in respiratory disorders? *Am J Respir Crit Care Med* 2012; 185:10-1 (Editorial).
22. Ramírez M, Martínez-Llorens J, Sanchez JF ... [Gea J](#) et al. Body composition in adolescent idiopathic scoliosis. *Eur Spine J* 2013; 22:324-9.
23. Bazan V, Grau N, Valles E, ... [Gea J](#) et al. Obstructive Sleep Apnea in Patients with Typical Atrial Flutter: Prevalence and impact on arrhythmia control outcome. *Chest* 2013; 143:1277-83.
24. Donaire-Gonzalez D, Gimeno-Santos E, Balcells E, ... [Gea J](#) et al. Physical activity in COPD patients: Patterns and bouts. *Eur Respir J* 2013; 42:993-1002.
25. Blanco I, Santos S, [Gea J](#) et al. Sildenafil to improve respiratory rehabilitation outcomes in COPD: A controlled trial. *Eur Respir J* 2013; 42:982-92.
26. Marco E, Ramírez-Sarmiento AL, Coloma A, ... [Gea J](#) et al. High-Intensity vs. sham inspiratory muscle training in patients with chronic heart failure: a prospective randomized trial. *Eur J Heart Fail* 2013; 15:892-901.
27. Rubini M, Hoeller R, Reichlin T, ... [Gea J](#) et al. Rapid rule out of acute myocardial infarction using undetectable levels of high-sensitivity cardiac troponin. *Int J Cardiol* 2013; 168:3896-901
28. Barreiro E, Femoselle C, Mateu-Jimenez M, ... [Gea J](#) et al. Oxidative stress and inflammation in the normal airways and blood of patients with lung cancer and COPD. *Free Radic Biol Med* 2013; 65:859-71.
29. Freixa X et al.; PAC-COPD Study Investigators (... [Gea J](#) et al.). Echocardiographic abnormalities in patients with COPD at their first hospital admission. *Eur Respir J* 2013; 41: 784-91.
30. [Gea J](#), Agusti A, Roca J. Pathophysiology of muscle dysfunction in COPD. *J Appl Physiol*. 2013; 114:1222-34 (Review).
31. Cases M, Furlong LI, Albanell J, ... [Gea J](#) et al. Improving data and knowledge management to better integrate healthcare and research. *J Intern Med* 2013; 274:321-8 (Review).
32. Ramon MA, Gimeno-Santos E, Ferrer J, ... [Gea J](#) et al. Hospital admissions and exercise capacity decline in patients with COPD. *J. Eur Respir J* 2014; 43:1018-27.

33. Domínguez-Álvarez M, Sabaté-Brescó M, Vilà-Ubach M, ... [Gea J](#), Barreiro E. Molecular and physiological events in respiratory muscles and blood of rats exposed to inspiratory threshold loading. *Transl Res* 2014; 163:478-93.
34. Rodríguez DA, Garcia-Aymerich J, Valera JL, ... [Gea J](#) et al. Determinants of exercise capacity in obese and non-obese COPD patients. *Respir Med* 2014; 108:745-51.
35. Rodríguez E et al.; PAC-COPD Study Group (... [Gea J](#) et al). Lifetime occupational exposure to dusts, gases and fumes is associated with bronchitis symptoms and higher diffusion capacity in COPD patients. *PLoS One* 2014; 9:e88426.
36. Maltais F, Decramer M, Casaburi R, ... [Gea J](#) et al. An official American Thoracic Society and European Respiratory Society statement; Update on limb muscle dysfunction in COPD.. *Am J Respir Crit Care Med* 2014; 189:e15-e62. Executive summary in *Am J Respir Crit Care Med* 2014; 189: e15-e62.
37. Estrada L, Torres A, Sarlabous L, ... [Gea J](#) et al. Estimation of bilateral asynchrony between diaphragm mechanomyographic signals in patients with COPD. *Conf Proc IEEE Eng Med Biol Soc* 2014; 2014:3813-6.
38. Cáceres DI, Sartor-Messagi M M, Rodríguez DA, ... [Gea J](#) et al. Variability in bioelectrical impedance assessment of body composition depending on measurement conditions: influence of fast and rest. *Nutr Hosp* 2014; 30:1359-65.
39. Puig-Vilanova E, Aguiló R, Rodríguez-Fuster A, ... [Gea J](#) et al. Epigenetic mechanisms in respiratory muscle dysfunction of patients with chronic obstructive pulmonary disease. *PLoS One* 2014; 9:e111514.
40. Grosdidier S, Ferrer A, Faner R, ... [Gea J](#) et al. Network medicine analysis of COPD multimorbidities. *Respir Res* 2014;15:111.
41. Patel MS, Natanek SA, Stratakos G, ... [Gea J](#) et al. Vastus lateralis fiber shift is an independent predictor of mortality in chronic obstructive pulmonary disease. *Am J Respir Crit Care Med* 2014; 190:350-2.
42. Puig-Vilanova E, Ausin P, Martínez-Llorens J, [Gea J](#), Barreiro E. Do epigenetic events take place in the vastus lateralis of patients with mild chronic obstructive pulmonary disease? *PLoS One* 2014; 9:e102296.
43. Arostegui I et al.; IRYSS-COPD Group (... [Gea J](#) et al.). Subtypes of patients experiencing exacerbations of COPD and associations with outcomes. *PLoS One* 2014; 9:e98580.
44. Puig-Vilanova E, Rodríguez DA, Lloreta J, ... [Gea J](#) et al. Oxidative stress, redox signaling pathways, and autophagy in cachectic muscles of male patients with advanced COPD and lung cancer. *Free Radic Biol Med* 2014; 79:91-108.
45. Barreiro E, [Gea J](#). Epigenetics and muscle dysfunction in chronic obstructive pulmonary disease. *Transl Res* 2015; 165:61-73 (Review).
46. Agusti A, Antó JM, Auffray C, ... [Gea J](#) et al. JI. Personalized Respiratory Medicine: Exploring the Horizon, Addressing the Issues. *Am J Respir Crit Care Med* 2015; 191:391-401 (Review).
47. Barreiro E, [Gea J](#). Respiratory and Limb Muscle Dysfunction in COPD. *COPD* 2015; 12:413-26 (Review).
48. Gea J, Pascual S, Casadevall C et al. Muscle dysfunction in chronic obstructive pulmonary disease: update on causes and biological findings. *J Thorac Dis* 2015; 7:E418-E438 (Review).
49. Puig-Vilanova E, Martínez-Llorens J, Ausin P, ... [Gea J](#) et al. Quadriceps muscle weakness and atrophy are associated with a differential Epigenetic Profile in Advanced COPD. *Clin Sci (Lond)* 2015; 128:905-21.
50. Balcells E, Gimeno E, de Batlle J ... [Gea J](#) et al. Characterisation and prognosis of undiagnosed chronic obstructive pulmonary disease patients at their first hospitalisation. *BMC Pulm Med* 2015; 15:4.
51. Donaire-Gonzalez D, Gimeno E, Balcells E ... [Gea J](#) et al. Benefits of physical activity on COPD hospitalisation depend on intensity. *Eur Respir J* 2015; 46:1281-9.
52. Pérez-Terán P, Roca O, Rodríguez-Palomares J ... [Gea J](#) et al. Influence of right ventricular function on the development of primary graft dysfunction after lung transplantation. *J Heart Lung Transplant* 2015; 34:1423-9.
53. Barberan-García A, Rodríguez DA, Blanco I, [Gea J](#) et al. Non-anaemic iron deficiency impairs response to pulmonary rehabilitation in COPD. *Respirology* 2015; 20:1089-95.
54. Pomares X, Montón C, Baré M ... [Gea J](#) et al. Emergency hospital care for exacerbation of COPD: Is inhaled maintenance therapy modified? *COPD* 2015; 29:1-8.

### 3.3. Other achievements.

#### - Direction of 19 Ph.D. Thesis (two more in course):

1. J. Broquetas (1993); 2. J. Sauleda (1994); 3. C. Aguar (1995); 4. M. Orozco-Levi (1995); 5. L. Gallart (1995); 6. M. Pastó (1999); 7. J. Palacio (2001); 8. E. Barreiro (2002); 9. A. Ramírez (2002); 10. L. Blanco (2003); 11. J. Martínez-Llorens (2004); 12. C. Coronell (2006); 13. J. Vilaró (2007); 14. M. Domínguez (2011); 15. O. Pallàs (2012); 16. S. Pascual (2015); 17. P. Ausín (2016); 18. E. Balcells (2016); 19. A. Balaña (2016)

#### - Peer Reviewer in different medical journals (including *Am J Respir Crit Care Med*; *Eur Respir J*; *Am J Clin Nutr*; *Thorax*; *Am J Phys-Reg I*; *J Appl Physiol* & *J Physiol (London)* & International Agencies.

### 4. Languages

Spanish and Catalan (mother tongue languages), English (fluent), French (medium).