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|-----------------------------------------------------------------------------------|--------------------------------------------------------|-------|----------------------------------------------------------------------------------------------------|--------------------|---------------------------|
|  | <b>BIOGRAPHICAL SKETCH</b>                             |       | POSITION TITLE: Full Professor of Medicine - Head of the Department of Endocrinology and Nutrition |                    |                           |
|                                                                                   | NAME: Escobar-Morreale, Héctor F.                      |       |                                                                                                    |                    |                           |
|                                                                                   | BIRTH DATE & LOCATION:<br>Sept 28, 1963, Madrid, Spain |       |                                                                                                    |                    |                           |
|                                                                                   | EDUCATION: INSTITUTION                                 |       | DEGREE                                                                                             | YEAR(s)            | FIELD OF STUDY            |
|                                                                                   | Universidad Autónoma de Madrid                         |       | M.D.                                                                                               | 1987               | Medicine & Surgery        |
|                                                                                   | Hospital Universitario Ramón y Cajal                   |       | Specialist                                                                                         | 1992               | Endocrinology & Nutrition |
| Universidad Autónoma de Madrid                                                    |                                                        | Ph.D. | 1994                                                                                               | Medicine & Surgery |                           |

#### A. Positions and Honors.

##### Positions and Employment

|              |                                                                                                                                                                          |
|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1989-1992    | Medical Residency, Endocrinology & Nutrition, Hospital Ramón y Cajal, Madrid                                                                                             |
| 1993-1994    | PreDoctoral Fellow, Molecular Endocrinology Unit, Instituto de Investigaciones Biomédicas, Spanish Research Council, Madrid                                              |
| 1994-1997    | Assistant Physician, Emergency Room and Department of Endocrinology, Hospital Ramón y Cajal, Madrid                                                                      |
| 1997-2013    | Assistant in Endocrinology, Department of Endocrinology, Hospital Ramón y Cajal, Madrid                                                                                  |
| 2005-2011    | Associate Professor of Medicine, University of Alcalá, Madrid                                                                                                            |
| 2008-present | Director of the Diabetes, Obesity and Human Reproduction Research Group, Centro de Investigación Biomédica en Red Diabetes y Enfermedades Metabólicas Asociadas CIBERDEM |
| 2009-2020    | Co-Chairman, Section of Cardiometabolism and Systems Pathology, Instituto Ramón y Cajal de Investigación Sanitaria IRYCIS.                                               |
| 2011-2020    | Profesor of Medicine, University of Alcalá.                                                                                                                              |
| 2014-present | Head, Department of Endocrinology & Nutrition, Hospital Universitario Ramón y Cajal.                                                                                     |
| 2020-present | Full Professor of Medicine, University of Alcalá.                                                                                                                        |

##### Other Experience and Professional Memberships

- Certificate of the Educational Commission for Foreign Medical Graduates, Philadelphia, PA, February 1989.
- Associate Editor: Human Reproduction (2009-12).
- Editorial Boards: The Journal of Clinical Endocrinology & Metabolism (two 4-yr terms), Journal of Endocrinological Investigation; Treatments in Endocrinology, American Journal of Clinical and Experimental Obstetrics and Gynecology
- Reviewer: more than 100 journals including, among others, The Lancet, JAMA, Annals of Internal Medicine, Archives of Internal Medicine, Diabetes, The Journal of Clinical Endocrinology & Metabolism, Endocrinology, Diabetes Care, Proteomics, PLoS ONE, American Journal of Physiology Endocrinology & Metabolism, American Journal of Respiratory Cell and Molecular Biology, Canadian Medical Association Journal, Journal of Molecular Medicine, Molecular Human Reproduction, Human Reproduction, Fertility and Sterility, Clinical Endocrinology, International Journal of Obesity, European Journal of Endocrinology, Molecular Genetics and Metabolism and Thyroid.
- Boards: Secretary-Treasurer, Androgen Excess Society 2002-2005, Chairman, Guidelines Committee, Androgen Excess Society 2011-2013, Director-At-Large, Androgen Excess Society 2012-2016.
- Memberships: Spanish Society of Endocrinology and Nutrition (1989-), Endocrine Society (2000-), Androgen Excess Society (2002-), New York Academy of Sciences (2010), European Society of Endocrinology (2012-).
- Supervisor - Hormone immunochemiluminescent assays, Endocrinology Laboratory, Hospital Ramón y Cajal (1998-2013).
- Hospital Ramón y Cajal Advisory Committees: Mortality Control Advisory Committee, Clinical Research Advisory Committee, Strategic Research Committee.

##### Honors

- 2001 Sero Award for Research in Endocrinology, Spanish Society of Endocrinology and Nutrition
- 2005, 2006, 2008, 2015 Almirall Award for Research in Vascular Risk Factors, Spanish Society of Endocrinology & Nutrition
- 2008 Outstanding Reviewer Recognition Award, Journal of Clinical Endocrinology and Metabolism, Endocrine Society.
- 2013 & 2018 Outstanding Reviewer, Human Reproduction, European Society of Human Reproduction & Embryology.
- 2018 Certificate in Outstanding Contribution in Reviewing, Metabolism, Elsevier
- 2019 Walter Futterweit Award on Excellence in Clinical Research on Androgen Excess Disorders. AE&PCOS Society

#### B. Publication record:

**B.1: h index: WoS: 65; Google Scholar 79. cumulative impact-factor according to WoS 2023: 1451. mean impact factor: 5.7**

**B.2. Selected peer-reviewed publications** (chronological order, 25 from 240 articles in International Journals)

1. Replacement therapy for hypothyroidism with thyroxine alone does not ensure euthyroidism in all tissues, as studied in thyroidectomized rats. H. F. Escobar-Morreale, M<sup>a</sup>. J. Obregón, F. Escobar del Rey, G. Morreale De Escobar. J Clin Invest 1995; 96:2828-2838.
2. A prospective study of the prevalence of the polycystic ovary syndrome in unselected caucasian women from Spain. M.Asunción, R. Calvo, J. L. San Millán, J. Sancho, S. Avila, H. F. Escobar-Morreale. J Clin Endocrinol Metab 2000; 85: 2434-38.
3. Thyroid hormone replacement therapy in primary hypothyroidism: a randomized trial comparing L-thyroxine plus liothyronine with L-thyroxine alone. H. F. Escobar-Morreale, J. I. Botella-Carretero, M. Gómez-Bueno, J. M. Galán, V. Barrios, J. Sancho. Ann Intern Med 2005;142:412-424.
4. The molecular-genetic basis of functional hyperandrogenism and the polycystic ovary syndrome. H. F. Escobar-Morreale, M. Luque-Ramírez, J. L. San Millán. Endocr Rev 2005;26: 251-282
5. Adiponectin and resistin in the polycystic ovary syndrome: A Clinical, Biochemical and Molecular Genetic Study. H. F. Escobar-Morreale, G. Villuendas, J. I. Botella-Carretero, F. Álvarez-Blasco, R. Sanchón, M. Luque-Ramírez, J. L. San Millán. Hum Reprod 2006;21:2257-2265

6. Prevalence and characteristics of the polycystic ovary syndrome in overweight and obese women. F. Álvarez-Blasco, J. I. Botella-Carretero, J. L. San Millán, H. F. Escobar-Morreale. *Arch Intern Med* 2006;166:2081-2086
7. Criteria for defining polycystic ovary syndrome as a predominantly hyperandrogenic syndrome: An Androgen Excess Society guideline. R. Azziz, E. Carmina, D. Dewailly, E. Diamanti-Kandarakis, H. F. Escobar-Morreale, W. Futterweit, O. E. Janssen, R. S. Legro, R. J. Norman, A. E. Taylor, S. F. Witchel. *J Clin Endocrinol Metab* 2006;91:4237-4245
8. Comparison of ethinyl-estradiol plus cyproterone acetate versus metformin effects on classic metabolic cardiovascular risk factors in women with the polycystic ovary syndrome. M. Luque-Ramírez, F. Álvarez-Blasco, J. I. Botella-Carretero, E. Martínez-Bermejo, M. A. Lasunción, H. F. Escobar-Morreale. *J Clin Endocrinol Metab* 2007;92:2453-246
9. Abdominal adiposity and the polycystic ovary syndrome. H. F. Escobar-Morreale, J. L. San Millán. *Trends Endocrinol Metab* 2007;18:266-272
10. A prospective study of the prevalence of nonclassic congenital adrenal hyperplasia (NCAH) among women presenting with hyperandrogenic symptoms and signs. H. F. Escobar-Morreale, Raúl Sanchón, J. L. San Millán. *J Clin Endocrinol Metab* 2008;93:527-533
11. Assessment of cardiovascular risk and prevention of cardiovascular disease in women with the polycystic ovary syndrome: a position statement by the Androgen Excess & Polycystic Ovary Syndrome (AE-PCOS) society. R. A Wild, E. Carmina, E. Diamanti-Kandarakis, A. Dokras, H. F. Escobar-Morreale, W. Futterweit, R. Lobo, R. J. Norman, E. Talbott, D. A. Dumesic. *J Clin Endocrinol Metab* 2010;95:2038-2049
12. Epidemiology, diagnosis and management of hirsutism: a consensus statement by the Androgen Excess and Polycystic Ovary Syndrome Society. H. F. Escobar-Morreale, E. Carmina, D. Dewailly, A. Gambineri, F. Kelestimur, P. Moghetti, M. Pugeat, J. Qiao, C. N. Wijeyaratne, S. F. Witchel, R. J. Norman. *Hum Reprod Update* 2012;18:146-170
13. Iron metabolism and the polycystic ovary syndrome. H. F. Escobar-Morreale. *Trends Endocrinol Metab* 2012; 23: 509-515
14. Metabolic heterogeneity in polycystic ovary syndrome is determined by obesity: plasma metabolomic approach using GS-MS. H. F. Escobar-Morreale, S. Samino, M. Insenser, M. Vinaixa, M. Luque-Ramírez, M. A. Lasunción, X. Correig. *Clin Chem* 2012;58:999-1009 ISSN (printed): 0009-9147. ISSN (electronic): 1530-8561
15. Circulating markers of oxidative stress and polycystic ovary syndrome (PCOS): a systematic review and meta-analysis. M. Murri, M. Luque-Ramírez, M. Insenser, M. Ojeda-Ojeda, H. F. Escobar-Morreale. *Hum Reprod Update* 2013;19:268-88
16. Type 1 diabetes and polycystic ovary syndrome: systematic review and meta-analysis. H. F. Escobar-Morreale, B. Roldán-Martín. *Diabetes Care* 2016;39:639-648
17. Prevalence of 'obesity-associated gonadal dysfunction' in severely obese men and women and its resolution after bariatric surgery: a systematic review and meta-analysis. H. F. Escobar-Morreale, E. Santacruz, M. Luque-Ramírez, J. I. Botella Carretero. *Hum Reprod Update*. 2017 23:390-408.
18. Non-classic congenital adrenal hyperplasia due to 21-hydroxylase deficiency revisited: an update with a special focus on adolescent and adult women. E. Carmina, D. Dewailly, H. F. Escobar-Morreale, F. Kelestimur, C. Moran, S. Oberfield, S. F. Witchel, R. Azziz. *Hum Reprod Update*. 2017 23:580-599.
19. Combined oral contraceptives and/or antiandrogens versus insulin sensitizers for polycystic ovary syndrome: a systematic review and meta-analysis. M. Luque-Ramírez, L. Nattero, A. E. Ortiz-Flores, H. F. Escobar-Morreale. *Hum Reprod Update* 2018;24:225-241.
20. Polycystic ovary syndrome: definition, aetiology, diagnosis and treatment. H. F. Escobar-Morreale. *Nat Rev Endocrinol* 2018;14:270-284.
21. Non-targeted profiling of circulating microRNAs in women with polycystic ovary syndrome (PCOS): effects of obesity and sex hormones. M. Murri, M. Insenser, E. Fernández-Durán, J. L. San-Millán, M. Luque-Ramírez, H. F. Escobar-Morreale. *Metabolism* 2018;86:49-60
22. Diagnosis of disorders of glucose tolerance in women with polycystic ovary syndrome (PCOS) at a tertiary care center: fasting plasma glucose or oral glucose tolerance test? A. Ortiz-Flores, M. Luque-Ramírez, E. Fernández-Durán, F. Álvarez-Blasco, H. F. Escobar-Morreale. *Metabolism* 2019;93:86-92
23. Postprandial inflammatory responses after oral glucose, lipid and protein challenges: influence of obesity, sex and polycystic ovary syndrome. M. A. Martínez-García, S. Moncayo, M. Insenser, R. Montes-Nieto, E. Fernández-Durán, F. Álvarez-Blasco, M. Luque-Ramírez, H. F. Escobar-Morreale. *Clin Nutr* 2020;39:876-885
24. Prevalence of polycystic ovary syndrome and related hyperandrogenic traits in premenopausal women with type 1 diabetes: a systematic review and meta-analysis. A. Bayona, V. Martínez-Vaello, J. Zamora, L. Nattero-Chávez, M. Luque-Ramírez, H. F. Escobar-Morreale. *Hum Reprod Update* 2022 doi: 10.1093/humupd/dmac011
25. PCOS during the menopausal transition and after menopause: a systematic review and meta-analysis. M. Millán de Meer, M. Luque-Ramírez, L. Nattero Chávez, H. F. Escobar-Morreale. *Human Reproduction Update* 2023 doi: 10.1093/humupd/dmad015.

**C. Research Support Role: selected grants as Principal Investigator**

- 1- FIS 00/0414 Spanish Ministry of Health. Epidemiological, clinical, biochemical and molecular genetic study of functional female hyperandrogenism
- 2- FIS PI020741 01/01/02-31/12/05. A molecular-genetic, clinical and surgical study of a human model of insulin resistance: The polycystic ovary syndrome and obesity.
- 4- FIS PI050341 01/01/2006-31/12/2008. A global approach to the study of the polycystic ovary syndrome as an early marker of the metabolic inflammatory cardiovascular syndrome
- 5- FIS PI080944 01/01/2009-31/12/2011. Influence of androgens on the development of abdominal adiposity and on the dysfunction of visceral fat in humans, as pathogenetic factors for insulin resistance and diabetes.
- 6- FIS PI1100357 01/01/2012-31/12/2015. Hormonal, metabolic, inflammatory and oxidant responses to the different macronutrients of diet: influence of sex steroids.
- 7- FIS PI1501686 01/01/2016-31/12/2018. Influence of sex and sex hormones on adipose tissue dysfunction and chronic metabolic disorders of complex multifactorial etiology (SEXMETAB).
- 8- FIS PIE1600050 01/01/2017-31/12/2019. Influence of sex and sex hormones on human chronic disorders of complex etiology (acronym: SEXCOMPLEX).
- 9- FIS PI1801122 – 01/01/2019-31/12/2021. Amount, distribution and dysfunction of body fat as determinants of female gonadal dysfunction: from functional hypothalamic amenorrhea to the polycystic ovary syndrome.
- 10- FIS PI2100116 – 01/01/2022-31/12/24. Validation of biomarkers for the diagnosis, prognosis and prediction of therapeutic outcomes in women with polycystic ovary syndrome (PCOS).