



3.6.4 Osteoarticular Surgery Research - GICOA Group

Publications: **41**

Q1: **12**

COMPOSITION

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STRATEGIC OBJECTIVE

Orthopaedic implant studies are required to assess the results of implants, detect the causes of failure, and deepen our understanding of the prevention and solution of these failures. The medical, social, and economic relevance of orthopaedic implants, and their influence on quality of life, place this technology in the centre of translational research in orthopaedic surgery. Reconstruction based on biological strategies and biomaterials is rapidly evolving, and cutting edge research on these topics may offer an advantage in clinical translational research.

The group has also developed studies on sports medicine and ligament reconstruction, with various outcome approaches and devices that may enhance surgical results. In this context, a multidisciplinary clinical and basic research group on orthopaedic surgery deepens our understanding of a wide variety of current research topics in the field and provides further progress towards clinical translation.

In order to contribute to new advances in the field, our main clinical and experimental objecti-



ves are addressed by a joint research line that covers issues related to bone and joint reconstruction. These issues include the following:

- Failed hip and knee prostheses, including the material, biological, and clinical mechanisms of failure. This research may lead to proposals for materials and design modifications in orthopaedic implants and reconstructive devices and techniques. Functional

recovery of the patient is the ultimate goal, considering various scenarios from an experimental and clinical point of view.

- Regenerative medicine approaches to bone and joint reconstruction, to generate pre-clinical and clinical proposals for bone and joint regeneration and repair, both in traumatic and non-traumatic bone and soft-tissue injuries.

RESEARCH LINES

- Clinical and basic research in Orthopaedics implants, and in bone and joint reconstruction.

RESEARCH ACTIVITY

● Publications

- de la Corte-Rodríguez H, Rodríguez-Merchán EC, Álvarez-Román MT, Martín-Salces M, Rivas-Pollmar I, Jiménez-Yuste V. Arthropathy in people with mild haemophilia: Exploring risk factors. *Thromb Res.* 2022; 211: 19-26. Article. IF: 7.5; Q1
- Encinas-Ullán CA, Gómez-Cardero P, Rodríguez-Merchán EC. Total knee arthroplasty in patients with prior ipsilateral hip fusion: a surgical technique. *HSS J.* 2022; 18(1): 175-81. Article. IF: 2.5; Q2
- Fernández-Fernández R, Moraleda-Novo L, de Armas JN, Cruz-Pardos A. Outcome measures and survivorship following total hip arthroplasty in adolescent population. *Int Orthop.* 2022; 46(12): 2785-91. Article. IF: 2.7; Q2
- Fuentes-Sánchez J, Gómez-Barrena E. Complications and surgical treatment after pathological fracture associated to HIV secondary disease. A case report. *J Surg Case Rep.* 2022; 2022(6): rjac223. Article. IF: 0.5; Q4
- Gálvez-Sirvent E, Ibarzábal-Gil A, Rodríguez-Merchán EC. Complications of the surgical treatment of fractures of the tibial plateau: prevalence, causes, and management. *Efort Open Rev.* 2022; 7(8): 554-68. Article. IF: 3.4; Q1
- García-Rey E, Cruz-Pardos A, Saldaña L. New polyethylenes in total hip arthroplasty a 20-to 22-year follow-up study. *Bone Joint J.* 2022; 104B(9): 1032-38. Article. IF: 4.6; D1
- Gómez-Barrena E, Padilla-Eguiluz NG, López-Marfil M, Reina RRD. Volume and location of bone regeneration after autologous expanded mesenchymal stromal cells in hip osteonecrosis. *Bone Joint Res.* 2022; 11(12): 881-9. Article. IF: 4.6; D1
- Gómez-Barrena E, Warren T, Walker I, Jain N, Kort N, Loubignac F, Newman S, Perka C, Spinarelli A, Whitehouse MR, Zagra L, de la Torre BJ. Prevention of periprosthetic joint infection in total hip and knee replacement: one european consensus. *J Clin Med.* 2022; 11(2): 381. Article. IF: 3.9; Q2
- González-Escobar S, Gimeno-Lluch I, Barco R. Elbow dislocations. *Minerva Med.* 2022; 73(2): 162-75. Review. IF: 0.4; Q4
- Ibarzábal-Gil A, Gálvez-Sirvent E, Martínez-Díez JM, Pallares-Sanmartín J, Kalbakdjí-Sánchez C, Mills S, Rubio-Suárez JC, Gil-Garay E, Rodríguez-Merchán EC. Comparative CT study on syndesmosis mobility after static or dynamic fixation for ankle fractures with syndesmotic rupture: A pilot study. *Arch Bone Jt Surg.* 2022; 10(8): 702. Article. IF: 1.3; Q4
- Kachooei A, Rodríguez-Merchán EC. Warning signs of predatory open access journals and pseudo solicitations: advice to avoid literature pollution. *Arch Bone Jt Surg.* 2022; 10(4): 299-300. Editorial Material. IF: 1.3; Q4
- Kooistra B, van den Bekerom M, Priester-Vink S, Barco R. Defining acute Essex-Lopresti injuries is problematic and variable: a systematic review. *Efort Open Rev.* 2022; 7(10): 727-33. Review. IF: 3.4; Q1
- Moreno-García A, Rodríguez-Merchán EC. Orthobiologics: Current role in orthopedic surgery and traumatology. *Arch Bone Jt Surg.* 2022; 10(7): 536-42. Review. IF: 1.3; Q4
- Rodríguez-Merchán C, Kalbakdjí-Sánchez C. The impact of Parkinson's disease on results of primary total knee arthroplasty. *Efort Open Rev.* 2022; 7(10): 701-9. Article. IF: 3.4; Q1
- Rodríguez-Merchán C, Ribbans WJ. The role of vancomycin-soaking of the graft in anterior cruciate ligament reconstruction. *J Isakos.* 2022; 7(2): 94-98. Review. IF: 1.6; Q4
- Rodríguez-Merchán C. The current role of the virtual elements of artificial intelligence in total knee arthroplasty. *Efort Open Rev.* 2022; 7(7): 491-7. Article. IF: 3.4; Q1
- Rodríguez-Merchán EC, de la Corte-Rodríguez H, Álvarez-Román MT, Gómez-Cardero P, Jiménez-Yuste V. Radiosynovectomy for the treatment of chronic hemophilic synovitis: an old technique, but still very effective. *J Clin Med.* 2022; 11(24): 7475. Review. IF: 3.9; Q2
- Rodríguez-Merchán EC, de la Corte-Rodríguez H, Álvarez-Román T, Gómez-Cardero P, Encinas-Ullán CA, Jiménez-Yuste V. Complications and implant survival of total knee arthroplasty in people with hemophilia. *J Clin Med.* 2022; 11(21): 6244. Review. IF: 3.9; Q2
- Rodríguez-Merchán EC, de la Corte-Rodríguez H, Álvarez-Román T, Gómez-Cardero P, Encinas-Ullán CA, Jiménez-Yuste V. Total knee arthroplasty in hemophilia: lessons learned and projections of what's next for hemophilic knee joint health. *Expert Rev Hematol.* 2022; 15(1): 65-82. Review. IF: 2.8; Q3
- Rodríguez-Merchán EC, de la Corte-Rodríguez H, Román-Belmonte JM. The effect of biomechanical footwear on pain from knee osteoarthritis. *Arch Bone Jt Surg.* 2022; 10(5): 381-4. Review. IF: 1.3; Q4
- Rodríguez-Merchán EC, Delgado-Martínez AD. Risk Factors for periprosthetic joint infection after primary total knee arthroplasty. *J Clin Med.* 2022; 11(20): 6128. Review. IF: 3.9; Q2
- Rodríguez-Merchán EC, Encinas-Ullán CA, Liddle AD. Osteochondral allografts for large osteochondral lesions of the knee joint: indications, surgical techniques and results. *Arch Bone Jt Surg.* 2022; 10(3): 245-51. Review. IF: 1.3; Q4
- Rodríguez-Merchán EC, Encinas-Ullán CA. Knee osteoarthritis following anterior cruciate ligament reconstruction: frequency, contributory elements, and recent interventions to modify the route of degeneration. *Arch Bone Jt Surg.* 2022; 10(11): 951-8. Review. IF: 1.3; Q4
- Rodríguez-Merchán EC, Peleteiro-Pensado M. Newly released advances in the molecular mechanisms of osseous metastasis and potential therapeutic strategies. *Arch Bone Jt Surg.* 2022; 10(9): 741-55. Review. IF: 1.3; Q4
- Rodríguez-Merchán EC, Shojaie B, Kachooei AR. Distal radioulnar joint instability: diagnosis and treatment. *Arch Bone Jt Surg.* 2022; 10(1): 3-16. Review. IF: 1.3; Q4
- Rodríguez-Merchán EC, Valentino LA. Return to sport activities and risk of reinjury following primary anterior cruciate ligament reconstruction. *Arch Bone Jt Surg.* 2022; 10(8): 648-60. Review. IF: 1.3; Q4
- Rodríguez-Merchán EC. Autologous and allogenic utilization of stromal vascular fraction and decellularized extracellular matrices in orthope-



1 Introduction

2 Executive Summary

3 Information Groups by Area

4 Associated Clinicians

dic surgery: a scoping review. Arch Bone Jt Surg. 2022; 10(10): 827-832. Review. IF: 1,3; Q4

- Rodríguez-Merchán EC. Bone healing materials in the treatment of recalcitrant nonunions and bone defects. Int J Mol Sci. 2022; 23(6): 3352. Article. IF: 5.6; Q1
- Rodríguez-Merchán EC. Intraarticular injections of mesenchymal stem cells in knee osteoarthritis: a review of their current molecular mechanisms of action and their efficacy. Int J Mol Sci. 2022; 23(23): 14953. Review. IF: 5.6; Q1
- Rodríguez-Merchán EC. Intra-articular platelet-rich plasma injections in knee osteoarthritis: a review of their current molecular mechanisms of action and their degree of efficacy. Int J Mol Sci. 2022; 23(3): 1301. Review. IF: 5.6; Q1
- Rodríguez-Merchán EC. Molecular mechanisms of cartilage repair and their possible clinical uses: a review of recent developments. Int J Mol Sci. 2022; 23(22): 14272. Review. IF: 5.6; Q1
- Rodríguez-Merchán EC. Osteoporosis in hemophilia: what is its importance in clinical practice? Expert Rev Hematol. 2022; 15(8): 697-710. Review. IF: 2.8; Q3
- Rodríguez-Merchán EC. Past, present, and future of orthopedic surgery in hemophilia: looking to a world without bleeding and arthropathy in the near future. Expert Rev Hematol. 2022; 15(9): 821-31. Review. IF: 2.8; Q3
- Rodríguez-Merchán EC. Remarks on some relevant recent reflections about revision total knee arthroplasty. Arch Bone Jt Surg. 2022; 10(3): 227-8. Editorial Material. IF: 1.3; Q4
- Rodríguez-Merchán EC. The current role of ankle arthrodesis in hemophilic patients. Arch Bone Jt Surg. 2022; 10(2): 129-34. Review. IF: 1.3; Q4
- Rodríguez-Merchán EC. The current role of artificial intelligence in hemophilia. Expert Rev Hematol. 2022; 15(10): 927-31. Review. IF: 2.8; Q3
- Rodríguez-Merchán EC. The current role of robotic-assisted total knee arthroplasty. Arch Bone Jt Surg. 2022; 10(12): 989-91. Editorial Material. IF: 1.3; Q4
- Rodríguez-Merchán EC. The function of sonication in the diagnosis of periprosthetic joint infection after total knee arthroplasty. Arch Bone Jt Surg. 2022; 10(9): 735-40. Review. IF: 1.3; Q4
- Román-Belmonte JM, de la Corte-Rodríguez H, Rodríguez-Merchán EC, Vázquez-Sasot A, Rodríguez-Damiani BA, Resino-Luis C, Sánchez-Laguna F. The three horizons model applied to medical science. Postgrad Med. 2022; 134(8):

776-83. Review. IF: 4.2; Q2

- Tandogan RN, Terzi E, Gómez-Barrena E, Violante B, Kayaalp A. Extensor mechanism ruptures. Efort Open Rev. 2022; 7(6): 384-95. Article. IF: 3.4; Q1
- Watts DT, Moosa A, Elahi Z, Palmer AJR, Rodríguez-Merchán C. Comparing the results of total ankle arthroplasty vs tibiotalar fusion (ankle arthrodesis) in patients with ankle osteoarthritis since 2006 a systematic review. Arch Bone Jt Surg. 2022; 10(6): 470-9. Review. IF: 1.3; Q4

● Research projects

Barco Laakso R. Artoplastia de cabeza radial anatómica versus espaciador de metal de vástago liso para traumatismo de codo. Médico Simulator S. L. 2018-Ongoing.

Management centre: FIBHULP

Barco Laakso R. Morfología radiocapitelar, un estudio anatómico. Acumed LLC. 2018-Ongoing.

Management centre: FIBHULP

Barco Laakso R. Terapia celular con células troncales derivadas del tejido adiposo (ASC) para mejorar el proceso de reparación en suturas tendinosas. Unión tendón-hueso (roturas del manguito rotador); unión tendón-músculo (roturas del tendón de aquiles) (). Sociedad Española de Cirugía Ortopédica y Traumatología. 2009-Ongoing.

Management centre: FIBHULP

García Rey E. Identificación de factores moleculares implicados en la Osteonecrosis Idiopática: análisis del transcriptoma del tejido óseo (PI18/00643). Ministerio de Economía, Industria y Competitividad. FIS-ISCIII. 2018-2022.

Management centre: FIBHULP

Gómez Barrena E. Desinfección in vivo de implantes ortopédicos metálicos mediante calor generado por inducción electromagnética. Fundación Mutua Madrileña. 2020-Ongoing.

Management centre: FIBHULP

Gomez Barrena E. ORTHO-3, uso de células mesenquimales de donante expandidas para la regeneración ósea en osteonecrosis de cabeza femoral desarrollada tras trasplante de médula ósea (PI17/01844). ISCIII. 2018-2022.

Management centre: FIBHULP

Gómez Barrena E. ORTHOpedic randomized clinical trial with expanded bone marrow MSC and bioceramics versus autograft in long bone nonUNIONS (ORTHOUNION). UE. 2017-2022.

Management centre: FIBHULP

● Patents and trademarks

Arenas Vara MA, Conde del Campo A, de Damborenea González JJ, Matykina E, Esteban Moreno J, Gómez Barrena E, Pérez-Jorge Peremarch C, Pérez Tanoira R, inventors; CSIC, Instituto de Investigación Sanitaria Fundación Jiménez Díaz, assignees. Titanium materials anodised with fluorine. P201030720, PCT/ES2011/070342; 2010 May 14

Gomez Barrena E, Cordero García-Galán E, Rico Nieto A, Pozo JJ, Esteban Moreno J, Sarnago H, Lucía Gil O, Acero Acero J, Burdío JM. Portable disinfection system based on induction heating; September 2022.

