

ADVANCES IN LABORATORY MEDICINE

AVANCES EN MEDICINA DE LABORATORIO

Official Journal of the Spanish Society of Laboratory Medicine SEMEDLAB

EDITOR-IN-CHIEF

Wladimiro Jiménez Povedano, Barcelona, Spain

ADVISORY CO-EDITOR

Álvaro González Hernández, Pamplona, Spain

ASSOCIATE EDITORS

Pilar Fernández Calle, Madrid, Spain

Ignacio Arribas Gómez, Madrid, Spain

Anna Merino González, Barcelona, Spain

Ángel Díaz Lagares, Santiago de Compostela, Spain

ADVISORY BOARD

M^a Belén Aparicio Hernández, Salamanca, Spain

Hugo Azevedo Rocha, Porto, Portugal

Antonio Buño Soto, Madrid, Spain

María José Calasanz Abinzano, Pamplona, Spain

Pilar Fernández Calle, Madrid, Spain

Francesca Canalias Reverter, Barcelona, Spain

Edgardo Carosella, Paris, France

Patrocinio Chueca Rodríguez, Navarra, Spain

Abdurrahman Coskun, Istanbul, Türkiye

Ana Belén Crujeiras, Santiago de Compostela, Spain

Ángel Díaz Lagares, Santiago de Compostela, Spain

Miguel Fernández de Sanmamed Gutiérrez,

New Haven, CT, USA

Maurizio Ferrari, Milan, Italy

Xavier Filella Pla, Barcelona, Spain

Callum G. Fraser, Dundee, UK

Rubén Gómez Rioja, Madrid, Spain

Montserrat González Estechea, Madrid, Spain

Damien Gruson, Brussels, Belgium

Eva Guillén Campuzano, Barcelona, Spain

Joao Tiago Guimaraes, Porto, Portugal

Mercè Ibarz Escuer, Lleida, Spain

Eric S. Kilpatrick, Doha, Qatar

Giuseppe Lippi, Verona, Italy

Eva Martínez Cáceres, Barcelona, Spain

Manuel Morales Ruiz, Barcelona, Spain

Miguel Angel Moreno Pelayo, Madrid, Spain

Michael Neumaier, Mannheim, Germany

Josep Oriola Ambrós, Barcelona, Spain

Alberto Pérez-Mediavilla, Pamplona, Spain

Mario Plebani, Padova, Italy

Belén Prieto García, Oviedo, Spain

Jose Puzo Foncillas, Huesca, Spain

Rodolfo Alberto Rey, Buenos Aires, Argentina

Carmen Ricós Águila, Barcelona, Spain

Francisco Rodríguez Frias, Barcelona, Spain

Sverre Sandberg, Bergen, Norway

Ana-Maria Šimundić, Zagreb, Croatia

Christos Tsatsanis, Heraklion, Greece

Rafael Venta Obaya, Asturias, Spain

Franz Villarroel Espindola, Providencia, Spain

Ian Young, Belfast, UK

Inès Zidi, Tunis, Tunisia

DE GRUYTER

Please see the journal's homepage for Abstracting & Indexing Services information.

The publisher, together with the authors and editors, has taken great pains to ensure that all information presented in this work (programs, applications, amounts, dosages, etc.) reflects the standard of knowledge at the time of publication. Despite careful manuscript preparation and proof correction, errors can nevertheless occur. Authors, editors and publisher disclaim all responsibility for any errors or omissions or liability for the results obtained from use of the information, or parts thereof, contained in this work. The citation of registered names, trade names, trademarks, etc. in this work does not imply, even in the absence of a specific statement, that such names are exempt from laws and regulations protecting trademarks etc. and therefore free for general use.

Advances of Laboratory Medicine/Avances en Medicina de Laboratorio is the official journal of the Spanish Society of Laboratory Medicine (SEMEDLAB).

e-ISSN 2628-491X

All information regarding contributions, subscriptions, Open Access, back volumes and orders is available online at www.degruyter.com/almed.

RESPONSIBLE EDITOR Wladimiro Jiménez Povedano, Universitat de Barcelona, Villarroel 170, 08036 Barcelona, Spain
e-mail: wjimenez@clinic.cat

PUBLISHER Walter de Gruyter GmbH, Berlin/Boston, Genthiner Str. 13, 10785 Berlin, Germany

JOURNAL COORDINATOR Heike Jahnke, De Gruyter, Genthiner Str. 13, 10785 Berlin, Germany, Tel.: +49 (0)30 260 05–220,
e-mail: heike.jahnke@degruyterbrill.com

© 2025 Walter de Gruyter GmbH, Berlin/Boston

TYPESETTING TNQ Tech Private Limited, Chennai, India

Questions about General Product Safety Regulation: productsafety@degruyterbrill.com