

Ibnosina Journal of Medicine and Biomedical Sciences

The Official Publication of The Libyan Authority of Scientific Research and Technology and the Libyan Biotechnology Research Center

Editor-in-Chief

Dr. Elmahdi A. Elkhammas, MD, FACS
Professor Emeritus
Department of Surgery
Division of Transplant surgery
The Ohio State University,
Columbus, Ohio, USA.

Deputy Editor

Dr. Salem A Beshyah, DIC, PhD, FRCP, FACE
Adjunct Professor of Clinical Research and Metabolic Medicine,
Dubai Medical College (DMC), Dubai, UAE.
Consultant Endocrinologist, Yas Clinic
Khalifa City and Abu Dhabi Stem cell
Center, Abu Dhabi, UAE.

Associate Editors

Dr. Elhadi Aburawi, MD, FRCPC
Professor, Department of Pediatrics.
Chair of CME & PD, College of Medicine and Health Sciences,
United Arab Emirates University
P. O. Box 17666, Al-Ain, United Arab Emirates

Dr. Abdulfattah A. Lakhdar, MSc, FRCP
Consultant Physician in Diabetes and Endocrinology,
Barts Health NHS Trust,
London, United Kingdom.

Dr. Khalid Mumtaz, MD
Associate Professor-Clinical, Gastro,
Hepatology & Nutrition
395 W 12th Ave, 2nd floor
Columbus, OH 43210

Members of the Editorial Board

Dr. Issam Mehdi Hajjaji, MBBCh, BAO, MA, FRCP, FRCPE
Professor, Department of Medicine,
Faculty of Medicine,
University of Tripoli, Libya
Tripoli, Libya.

Dr. Nureddin Ashammakhi, MBBS, PhD
Adjunct Associate Professor, Department of Radiological Sciences, David Geffen School of Medicine, UCLA.
Affiliate Faculty, Department of Biomedical Engineering, Henry Samueli School of Engineering, UCLA.

Dr. Abdelouahab Bellou, MD
Global HealthCare Network & Research Innovation Institute, Brookline,
MA 02446, USA.
International Board of Medicine and Surgery, Tampa, FL 34677, USA.

Dr. Adam I. Elzagheid, PhD
Professor of Pathology and Managing Director
Genetic Engineering Department,
Biotechnology Research Centre, Tripoli, Libya.

Dr. Awad G. Abdellatif, PhD
Professor of Pharmacology,
Faculty of Medicine,
University of Benghazi
Benghazi, Libya

Dr. Hussain Alsaffar, FRCPC
Consultant and Senior Lecturer,
Pediatric endocrinology and Diabetes,
Sultan Qaboos University Hospital,
Muscat, Oman.
Faculty of Biology, Medicine and Health,
University of Manchester, Manchester, UK.

Dr. Khadija Ahmed Hafidh, MB, FRCP

Consultant Physician and Diabetologist,
Department of Medicine,
Rashed Hospital, Dubai Health Authority,
Dubai, UAE
Senior Lecturer at Dubai Medical College for Girls, Dubai

Dr. Rajaie A. Namas, MD

Staff Physician, Department of Rheumatology,
Medical Subspecialties Institute,
Cleveland Clinic Abu Dhabi,
Abu Dhabi, UAE.

Dr. Samir B. Kahwash, MD

Professor- Clinical, The Ohio State University
Associate Chief for Education
Department of Pathology and Laboratory Medicine
Nationwide Children's Hospital
Department of Pathology, Nationwide Children's Hospital,
700 Children's Drive,
Columbus OH 43205

Alexander Woodman, PhD, MPH, MSci

Saudi Commission for Health Specialties - Licensed Specialist
P. O. Box 3301 / Beverly Hills / California / 90212 / + 1 310 498 4385/ Saudi Arabia

Dr. Nazeer Khan, PhD (Statistics Advisor)

Professor of Biostatistics,
Department of Research,
Jinnah Sindh Medical University,
Rafiqui H.J. Shaheed Road,
Karachi, 75510 Pakistan

© 2022. The Libyan Authority of Scientific Research and Technology and the Libyan Biotechnology Research Center. All rights, including the rights of publication, distribution, and sales, as well as the right to translation, are reserved. No part of this work covered by the copyrights hereon may be reproduced or copied in any form or by any means – graphic, electronic, or mechanical, including photocopying, recording, taping, or information and retrieval systems – without written permission of the publisher.

Ibnosina Journal of Medicine and Biomedical Sciences is published 4 times a year in March, June, September, and December by Thieme Medical and Scientific Publishers Pvt. Ltd., A-12, 2nd Floor, Sector 2, Noida-201301 UP, India. Tel: +91-120-4556600, Fax: +91-120-455-6649.

Subscription: Open access journals available online for free at <http://open.thieme.com>.

Advertisers contact: Marketing, Thieme Medical and Scientific Publishers Pvt. Ltd., A-12, 2nd Floor, Sector 2, Noida-201301 UP, India, marketing@thieme.in.

Ibnosina Journal of Medicine and Biomedical Sciences is indexed in Emerging Sources Citation Index, EBSCO, and ProQuest. Thieme Medical Publishers is a member of the CrossRef initiative.

Editorial comments should be sent to journals@thieme.com. The content of this journal is available online at www.thieme-connect.com/products. Visit our Web site at www.thieme.com and the direct link to this journal at www.thieme.com/ijmbs.

Typesetting: Thomson Digital, Noida, India

Printing and Binding: Replika Press Pvt. Ltd.

Printed in India