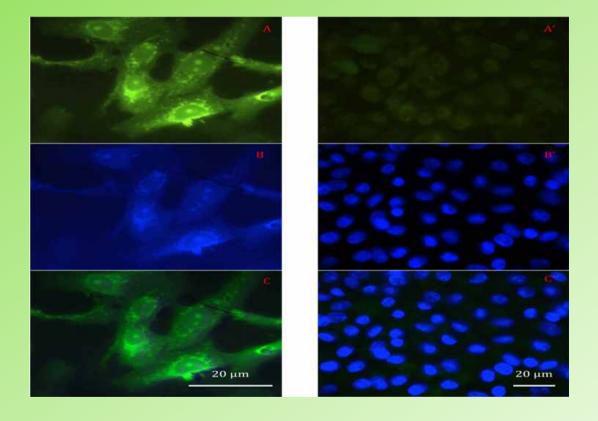


# **Advances in Microbiology**





### **Journal Editorial Board**

http://www.scirp.org/journal/aim

#### **Editors-in-Chief**

Prof. Yung-Fu Chang Cornell University, USA

**Prof. Alan W. Decho**University of South Carolina, USA

#### **Associate Editors-in-Chief**

Dr. Thaddeus Chukwuemeka Ezeji The Ohio State University & OARDC, USA

**Dr. Chang-Hui Shen** University of New York (CUNY), USA

#### **Editorial Board**

Prof. James Gordon Mitchell

Prof. Michele K. Nishiguchi

Dr. Kayanush (Kai) J. Aryana Louisiana State University, USA

Prof. Andrei L. Barkovskii Georgia College & State University, USA

**Dr. Payam Behzadi** Islamic Azad University, Iran

Prof. Frans J. de Bruijn INRA/CNRS Laboratory of the Interaction Plant-Microorganisms, France

Flinders University, Australia

New Mexico State University, USA

Prof. Sang Ho ChoiSeoul National University, South KoreaDr. Mohamed O. ElasriThe University of Southern Mississippi, USA

Prof. Daniel Y. C. Fung

Ransas State University, USA

Prof. Gamil Sayed Gamil Zeedan

Prof. Elisabeth Grohmann

Dr. Kaisa Haukka

Prof. Ming-Liang He

Kansas State University, USA

National Research Centre, Egypt

University of Freiburg, Germany

University of Helsinki, Finland

City University of Hong Kong, China

Prof. Carlos A. Jerez
University of Chile, Chile
University of Maryland, USA
University of New Mexico, USA
Prof. Mohiuddin Md. Taimur Khan
University of New Mexico, USA
Monash University, Australia
University of Arkansas, USA
Dr. Pamela A. Marshall
Arizona State University, USA

Dr. Xiaozhen MouKent State University, USAProf. Saleh A. NaserUniversity of Central Florida, USA

Prof. Heui-Dong ParkKyungpook National University, South KoreaProf. Ales ProkopTechnical University Ostrava, Czech Republic

Prof. Alexander RapoportUniversity of Latvia, LatviaDr. Jyotisna SaxenaThe Ohio State University, USA

Dr. Maulin Pramod Shah Industrial Waste Water Research Laboratory, India

**Prof. Abdelaal Shamseldin** Genetic Engineering and Biotechnology Research Institute, Egypt

**Dr. Jun Sun**Rush University, USA

Dr. Jimmy Siu Hung Tsang The University of Hong Kong, China

Prof. Michael K. Watters

Dr. Jing Xu

Northwestern University, USA

Prof. Zhongtang Yu

The Ohio State University, USA

Prof. Olga Zaborina

University of Chicago, USA

Dr. Zhe Zhang

Zhejiang University, China

Volume 6 Number 4



## **Table of Contents**

Volume 6 Number 4	April 2016
Neonatal Cerebrospinal Fluid, Bacterial Analysis as Seen at the University of Port Harcourt Teaching Hospital: A Five-Year Review	
Y. I. L. Eberechukwu, A. A. Temitayo	247
Using a Collateral Damage Model to Explain Survival Data in West Nile Virus Infections	
J. K. Peterson, A. M. Kesson, N. J. C. King	251
Studies on Enterotoxins and Antimicrobial Resistance in <i>Staphylococcus aureus</i> Isolated from Various Sources	
E. Y. Mohammed, S. H. Abdel-Rhman, R. Barwa, M. A. El-Sokkary	263
Inhibition of Curcumin-Treated Herpes Simplex Virus 1 and 2 in Vero Cells	
D. J. Flores, L. H. Lee, S. D. Adams	276
Synbiotic as Feed Additives Relating to Animal Health and Performance  H. J. Hamasalim	288
Antibiogram of <i>Escherichia coli</i> and <i>Pseudomonas</i> Strains Isolated from Wastewater Generated by an Abattoir as It Journeys into a Receiving River	
O. I. Falodun, A. O. Adekanmbi	303
Comparison of Five Expression Vectors for the Ha Gene in Constructing a DNA Vaccine for H6N2 Influenza Virus in Chickens	
S. H. Shan, T. Ellis, J. Edwards, S. Fenwick, I. Robertson	310
The Role of Circulating MicroRNAs as Markers of Disease Progression in Hepatitis C Virus Infected Egyptian Patients	
R. A. H. Harfoush, M. A. Meheissen, R. A. H. A. Elwafa, D. A. Elwazzan	320
Synthesis, Characterization, and Immunological Properties of LPS-Based Vaccines Composed of O-Polysaccharides Conjugated with Recombinant Exoprotein A from <i>Pseudomonas aeruginosa</i>	
N. F. Abu-Baker, H. Masoud	332
Detection of Listeria monocytogenes in Foods and Characterization by PFGE	
S. Park, H. Jung, M. Lee, H. Choi, J. Kim, J. Jung, S. Park, M. Kim, K. Kim, Y. Oh, A. Chung, K. Jung	g343

#### Advances in Microbiology (AiM)

#### **Journal Information**

#### SUBSCRIPTIONS

The Advances in Microbiology (Online at Scientific Research Publishing, <a href="www.SciRP.org">www.SciRP.org</a>) is published monthly by Scientific Research Publishing, Inc., USA.

#### **Subscription rates:**

Print: \$79 per issue.

To subscribe, please contact Journals Subscriptions Department, E-mail: <a href="mailto:sub@scirp.org">sub@scirp.org</a>

#### **SERVICES**

#### Advertisements

Advertisement Sales Department, E-mail: service@scirp.org

#### Reprints (minimum quantity 100 copies)

Reprints Co-ordinator, Scientific Research Publishing, Inc., USA.

E-mail: sub@scirp.org

#### **COPYRIGHT**

#### COPYRIGHT AND REUSE RIGHTS FOR THE FRONT MATTER OF THE JOURNAL:

Copyright © 2016 by Scientific Research Publishing Inc.

This work is licensed under the Creative Commons Attribution International License (CC BY). http://creativecommons.org/licenses/by/4.0/

#### COPYRIGHT FOR INDIVIDUAL PAPERS OF THE JOURNAL:

Copyright  $\ensuremath{\mathbb{C}}$  2016 by author(s) and Scientific Research Publishing Inc.

#### REUSE RIGHTS FOR INDIVIDUAL PAPERS:

Note: At SCIRP authors can choose between CC BY and CC BY-NC. Please consult each paper for its reuse rights.

#### DISCLAIMER OF LIABILITY

Statements and opinions expressed in the articles and communications are those of the individual contributors and not the statements and opinion of Scientific Research Publishing, Inc. We assume no responsibility or liability for any damage or injury to persons or property arising out of the use of any materials, instructions, methods or ideas contained herein. We expressly disclaim any implied warranties of merchantability or fitness for a particular purpose. If expert assistance is required, the services of a competent professional person should be sought.

#### PRODUCTION INFORMATION

For manuscripts that have been accepted for publication, please contact:

E-mail: aim@scirp.org



# Advances in Microbiology

**ISSN Print: 2165-3402** ISSN Online: 2165-3410

http://www.scirp.org/journal/aim

Advances in Microbiology (AiM) is an international journal dedicated to the latest advancement of Microbiology. The goal of this journal is to provide a platform for scientists and academicians all over the world to promote, share, and discuss various new issues and developments in different areas of Microbiology.

#### Editors-in-Chief

Prof. Yung-Fu Chang

Prof. Alan W. Decho

Cornell University, USA

University of South Carolina, USA

#### Associate Editors-in-Chief

Dr. Thaddeus Chukwuemeka Ezeji

Dr. Chang-Hui Shen

#### **Editorial Board**

Dr. Kayanush (Kai) J. Aryana Prof. Andrei L. Barkovskii

Dr. Payam Behzadi Prof. Frans J. de Bruijn

Prof. Sang Ho Choi

Dr. Mohamed O. Elasri Prof. Daniel Y. C. Fung

Prof. Gamil Sayed Gamil Zeedan

Prof. Elisabeth Grohmann

Dr. Kaisa Haukka Prof. Ming-Liang He

Prof. Carlos A. Jerez

The Ohio State University & OARDC, USA University of New York (CUNY), USA

Dr. Zvi Kelman

Prof. Mohiuddin Md. Taimur Khan

Prof. Jian Li

Prof. Yanbin Li

Dr. Pamela A. Marshall

Prof. James Gordon Mitchell

Dr. Xiaozhen Mou

Prof. Saleh A. Naser

Prof. Michele K. Nishiguchi Prof. Heui-Dong Park

Prof. Ales Prokop

Prof. Alexander Rapoport

Dr. Jvotisna Saxena

Dr. Maulin Pramod Shah

Prof. Abdelaal Shamseldin

Dr. Jun Sun

Dr. Jimmy Siu Hung Tsang

Prof. Michael K. Watters

Dr. Jing Xu

Prof. Zhongtang Yu

Prof. Olga Zaborina

Dr. Zhe Zhang

All manuscripts must be prepared in English, and are subject to a rigorous and fair peer-review process. Accepted papers will immediately appear online followed by printed hard copy. The journal publishes original papers including but not limited to the following fields:

- Applied and Environmental Microbiology
- Bacteriology
- Microbial Taxonomy
- Microbiology and Biochemistry
- Microbiology and Ecology

- Microbiology and Genetics
- Microbiology and Immunology
- Microbiology and Physiology
- Mycology

E-Mail: aim@scirp.org

Other Disciplines of Microbiology

We are also interested in: 1) Short Reports—2-5 page papers where an author can either present an idea with theoretical background but has not yet completed the research needed for a complete paper or preliminary data; 2) Book Reviews—Comments and critiques.

#### Website and E-Mail

http://www.scirp.org/journal/aim