

ISSN: 2156-8456 Volume 8, Number 5, May 2017



Advances in Bioscience and Biotechnology



ISSN: 2156-8456



www.scirp.org/journal/abb

Journal Editorial Board

ISSN: 2156-8456 (Print) ISSN: 2156-8502 (Online)

<http://www.scirp.org/journal/abb>

Editor-in-Chief

Prof. Abass Alavi

University of Pennsylvania, USA

Executive Editor-in-Chief

Prof. Roberto Fernández-Lafuente

Consejo Superior de Investigaciones Científicas, Spain

Managing Executive Editor

Prof. Tingfeng Li

Tulane University, USA

Editorial Board

Prof. Suleyman I. Allakhverdiev

Russian Academy of Sciences, Russia

Prof. Atsushi Asakura

University of Minnesota, USA

Prof. Sanchita Bandyopadhyay-Ghosh

University of Toronto, Canada

Prof. Susanta K. Behura

University of Notre Dame, USA

Prof. Benoît Chénais

Université du Maine, France

Prof. Mohamed Chahine

Laval University, Canada

Dr. Priya Choudhry

California Institute of Technology, USA

Prof. Alessandro S. Galdino

Universidade Federal de São João Del-Rei (UFSJ), Brazil

Prof. Mahdi Garelnabi

University of Massachusetts, USA

Dr. Mazeyar Parvinzadeh Gashti

Département de Chimie, Université Laval, Canada

Prof. Mehrnaz Gharaee-Kermani

University of Michigan, USA

Prof. Jane L. Hoover-Plow

Cleveland Clinic Lerner Research Institute, USA

Dr. Basalingappa L. Hungund

Columbia University, USA

Prof. Avinash P. Ingle

SGB Amravati University, India

Prof. Noah Isakov

Ben Gurion University of the Negev, Israel

Prof. Sabzali A. Javadov

University of Puerto Rico, USA

Dr. Shuli Kang

University of Southern California, USA

Prof. Lukasz Kedzierski

Monash University, Australia

Prof. Wan Lee

Dongguk University, South Korea

Dr. Lingyu Li

Stanford University, USA

Dr. Jiyan Ma

Ohio State University, USA

Prof. Manuela Martins-Green

University of California, USA

Prof. James Michael Mathis

Louisiana State University Health Sciences Center, USA

Prof. Subhash C. Mojumdar

University of New Brunswick, Canada

Prof. Pablo Iván Nikel

University of San Martín, Argentina

Prof. Akbar Nikkhah

University of Zanjan, Iran

Prof. David Pimentel

Cornell University, USA

Prof. Kun Qu

Stanford University, USA

Prof. Alireza G. Senejani

Yale University, USA

Dr. Manjunatha Shivaraju

Centre for Regenerative Medicine, Harvard Stem Cell
Institute, Harvard Medical School, USA

Prof. Ajay Singh

Lystek International Inc., Canada

Prof. Zheng Su

Genentech Inc., USA

Prof. Jinrong Wan

University of Missouri, USA

Prof. Jinfu Wang

Zhejiang University, China

Prof. Zhixiang Wang

University of Alberta, Canada

Dr. Yonggan Wu

Stanford University, USA

Prof. Wanxi Yang

Zhejiang University, China

Table of Contents

Volume 8 Number 5

May 2017

**Investigation of the Phytochemicals, Antioxidant, and Antimicrobial Activity
of the *Andrographis paniculata* Leaf and Stem Extracts**

S. A. Polash, T. Saha, M. S. Hossain, S. R. Sarker.....149

**Estimated Binding Energies of Drug-Like and Nondrug-Like Molecules in the Active
Site of HIV-1 Integrase, 1BIS.pdb, and Two Mutant Models: Y143R and N155H**

J. B. Ealy, N. Abouomar, J. Cogan, P. Flauta, L. Nassar, M. Mekolochik, S. Ramzy, C. Shannon, H. Yazgi.....163

Advances in Bioscience and Biotechnology (ABB)

Journal Information

SUBSCRIPTIONS

The *Advances in Bioscience and Biotechnology* (Online at Scientific Research Publishing, www.SciRP.org) is published monthly by Scientific Research Publishing, Inc., USA.

Subscription rates:

Print: \$89 per issue.

To subscribe, please contact Journals Subscriptions Department, E-mail: sub@scirp.org

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 © 2017 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 © 2017 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: abb@scirp.org



Call for Papers

Advances in Bioscience and Biotechnology

ISSN: 2156-8456 (Print) ISSN: 2156-8502 (Online)

<http://www.scirp.org/journal/abb>

Advances in Bioscience and Biotechnology (ABB) is an international journal dedicated to the latest advancement of biosciences. 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 biosciences. 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.

Editor-in-Chief

Prof. Abass Alavi

University of Pennsylvania, USA

Executive Editor-in-Chief

Prof. Roberto Fernández-Lafuente

Consejo Superior de Investigaciones Científicas, Spain

Managing Executive Editor

Prof. Tingfeng Li

Tulane University, USA

Editorial Board

Prof. Suleyman I. Allakhverdiev	Dr. Mazeyar Parvinzadeh Gashti	Dr. Lingyu Li	Dr. Manjunatha Shivaraju
Prof. Atsushi Asakura	Prof. Mehrnaz Gharaee-Kermani	Dr. Jiyan Ma	Prof. Ajay Singh
Prof. Sanchita Bandyopadhyay-Ghosh	Prof. Jane L. Hoover-Plow	Prof. Manuela Martins-Green	Prof. Zheng Su
Prof. Susanta K. Behura	Dr. Basalingappa L. Hungund	Prof. James Michael Mathis	Prof. Jinrong Wan
Prof. Benoît Chénais	Prof. Avinash P. Ingle	Prof. Subhash C. Mojumdar	Prof. Jinfu Wang
Prof. Mohamed Chahine	Prof. Noah Isakov	Prof. Pablo Iván Nikel	Prof. Zhixiang Wang
Dr. Priya Choudhry	Prof. Sabzali A. Javadov	Prof. Akbar Nikkhah	Dr. Yonggan Wu
Prof. Alessandro S. Galdino	Dr. Shuli Kang	Prof. David Pimentel	Prof. Wanxi Yang
Prof. Mahdi Garelnabi	Prof. Lukasz Kedzierski	Prof. Kun Qu	
	Prof. Wan Lee	Prof. Alireza G. Senejani	

Subject Coverage

This journal invites original research and review papers that address the following issues in bioscience and biotechnology. Topics of interest include, but are not limited to:

- Aerobiology
- Anthropology
- Biochemical Genetics
- Biochemistry
- Bioinformatics
- Biological Engineering
- Biological Evolution
- Biomathematics
- Biophysics
- Biostatistics
- Botany
- Cytobiology
- Developmental Biology
- Ecology
- Entomology
- Enzyme Engineering
- Genetic Engineering
- Genetics
- Immunology
- Microbiology
- Molecular Biology
- Nano-Bio-Analysis
- Neurobiology
- Pathology
- Physiology
- Protein Engineering
- Radiation Biology
- Virology
- Zoology

We are also interested in short papers (letters) that clearly address a specific problem, and short survey or position papers that sketch the results or problems on a specific topic. Authors of selected short papers would be invited to write a regular paper on the same topic for future issues of the **ABB**.

Notes for Intending Authors

Submitted papers should not have been previously published nor be currently under consideration for publication elsewhere. Paper submission will be handled electronically through the website. All papers are refereed through a peer review process. Authors are responsible for having their papers checked for style and grammar prior to submission to ABB. For more details about the submissions, please access the website.

Website and E-Mail

<http://www.scirp.org/journal/abb>

E-mail: abb@scirp.org

What is SCIRP?

Scientific Research Publishing (SCIRP) is one of the largest Open Access journal publishers. It is currently publishing more than 200 open access, online, peer-reviewed journals covering a wide range of academic disciplines. SCIRP serves the worldwide academic communities and contributes to the progress and application of science with its publication.

What is Open Access?

All original research papers published by SCIRP are made freely and permanently accessible online immediately upon publication. To be able to provide open access journals, SCIRP defrays operation costs from authors and subscription charges only for its printed version. Open access publishing allows an immediate, worldwide, barrier-free, open access to the full text of research papers, which is in the best interests of the scientific community.

- High visibility for maximum global exposure with open access publishing model
- Rigorous peer review of research papers
- Prompt faster publication with less cost
- Guaranteed targeted, multidisciplinary audience



**Scientific
Research
Publishing**

Website: <http://www.scirp.org>

Subscription: sub@scirp.org

Advertisement: service@scirp.org