Author's response to reviews

**Title:** Overexpression of amyloid-beta-binding alcohol dehydrogenase increases pheochromocytoma cell growth and resistance to cell death

**Authors:**
Emily A Carlson (e086c574@ku.edu)
Rebecca T Marquez (r100m828@ku.edu)
Liang Xu (xul@ku.edu)
Shirley ShiDu Yan (shidu@ku.edu)

**Version:** 2  
**Date:** 21 July 2014

**Author's response to reviews:** see over
Dear Editor:

On behalf of all the authors, I would like to submit the enclosed manuscript entitled, “Overexpression of amyloid-β-binding alcohol dehydrogenase increases pheochromocytoma cell growth and resistance to cell death” for the consideration of publication in BMC Cancer.

Heightened cell proliferation and resistance to anticancer treatments are two important factors underlying cancer development and aggressiveness. Amyloid-β-binding alcohol dehydrogenase (ABAD) is a mitochondrial enzyme that has recently been implicated in some prostate and bone cancers. While ABAD is well studied in neurodegenerative diseases, very little is known about the role of ABAD in tumorigenesis and cancer growth. Our study provides insight into a new mechanism underlying cancer development.

In this work, we investigated the role of ABAD in pheochromocytoma cell growth and resistance to cell death. We found that overexpression of ABAD increased pheochromocytoma cell growth in cell culture and an in vivo tumor mouse model. ABAD-overexpressing cells displayed further improvements in mitochondrial bioenergetics and energy production. Such enhanced effects in cell culture were largely reversed by knockdown of ABAD. Furthermore, cells overexpressing ABAD exhibited heightened resistance to oxidative stress stimulation. These studies indicate that ABAD mediates cancer cell growth and resistance to cell death, thereby providing a novel mechanism for cancer development. Thus, blockade of ABAD may represent a promising target for limiting tumor growth, which could have a significant impact on anticancer treatments.

I declare that all authors have read and approve submission of the manuscript, and that this paper has not been previously published, and is not being considered for publication elsewhere. All authors have no conflicting financial interests as described in the manuscript. Thank you for your consideration of our work.

We suggest the following qualified referees in reviewing our work.

Qualified Referees:

Frank Gunn-Moore  B.Sc. Ph.D  
Professor  
Department of Neuroscience and Cell biology  
Bute Medical Building  
School of Biology  
University of St Andrews, Fife  
Scotland, UK, KY16 9Ts  
Phone: 44-01334463525  

Department of Pharmacology & Toxicology  
5064 Malott Hall 1251 Wescoe Hall Dr. Lawrence, KS, 66045 (785) 864-4002 | Fax: (785) 864-5219 | www.pharmtox.pharm.ku.edu
Kazuhiro Takuma, Ph.D.
Associate Professor
Laboratory of Medicinal Pharmacology
Osaka University Graduate School of Pharmaceutical Science
Phone: 81-6-6879-8169
Fax: 81-6-6879-8159
E-mail: takuma@phs.osaka-u.ac.jp

Luciano Domenici, M.D., Ph.D.,
Professor of Physiology,
Department of Biomedical
Sciences and Technology,
School of Medicine,
University of L'Aquila,
Via Vetoio 11 (Coppito 2), room B 3/10,
67010 Coppito, L'Aquila
Email luciano.domenici@univaq.it
Institute of Neuroscience (C.N.R.),
Via G. Moruzzi 1, 56100, Pisa.
Phone: +39 050 3153182
Fax: +39 0503153220
E-mail: domenici@in.cnr.it

Lih-Fen Lue, PhD
Senior Scientist
Director of Laboratory of Neuroregeneration
Banner Sun Health Research Institute
10515 West Santa Fe Drive
Sun City, AZ 85351
Phone: 623-832-5464
E-mail: lihfen.lue@bannerhealth.com

Corresponding Author of this manuscript:

Shirley ShiDu Yan, M.D.
Howard Mossberg Distinguished Professor
Leader of Neuroscience & Neurodegenerative Diseases Division
Higuchi Biosciences Center
Department of Pharmacology & Toxicology
University of Kansas
Office phone: (785) 864-3637
E-mail: shidu@ku.edu

Department of Pharmacology & Toxicology
5064 Malott Hall | 1251 Wescoe Hall Dr. | Lawrence, KS, 66045 | (785) 864-4002 | Fax: (785) 864-5219 | www.pharmtox.pharm.ku.edu