JACC: BASIC TO TRANSLATIONAL SCIENCE VOL. 2, NO. 2, 2017

ISSN 2452-302X
http://dx.doi.org/10.1016/j.jacbts.2017.01.007

PRECLINICAL RESEARCH

Ticagrelor Removal From Human Blood

George O. Angheloiu, MD,[a,b,c] Gabriel B. Gugiu, PhD,[d] Cristian Ruse, PhD,[e] Rishikesh Pandey, PhD,[a] Ramachandra R. Dasari, PhD,[a] Carl Whatling, PhD[f]

JACC: BASIC TO TRANSLATIONAL SCIENCE CME

This article has been selected as the month's *JACC: Basic to Translational Science* CME activity, available online at http://www.acc.org/jacc-journals-cme by selecting the CME tab on the top navigation bar.

Accreditation and Designation Statement

The American College of Cardiology Foundation (ACCF) is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education for physicians.

The ACCF designates this journal-based CME activity for a maximum of 1 *AMA PRA Category 1 Credit(s)*. Physicians should only claim credit commensurate with the extent of their participation in the activity.

Method of Participation and Receipt of CME Certificate

To obtain credit for *JACC: Basic to Translational Science* CME, you must:

1. Be an ACC member or *JACC: Basic to Translational Science* subscriber.
2. Carefully read the CME-designated article available online and in this issue of the journal.
3. Answer the post-test questions. At least 2 out of the 3 questions provided must be answered correctly to obtain CME credit.
4. Complete a brief evaluation.
5. Claim your CME credit and receive your certificate electronically by following the instructions given at the conclusion of the activity.

CME Objective for This Article: The learning objectives are to: describe the pharmacologic properties of ticagrelor versus other $P2Y_{12}$ inhibitors; explain the rationale for ticagrelor removal in the BSA and human removal experiments; and examine the potential clinical impact of effective and efficient ticagrelor removal.

CME Editor Disclosure: CME Editor L. Kristin Newby, MD, is supported by research grants from Amylin, Bristol-Myers Squibb Company, GlaxoSmithKline, Sanofi-Aventis, Verily Life Sciences (formerly Google Life Sciences), the MURDOCK Study, NIH, and PCORI; receives consultant fees/honoraria from BioKier, DemeRx, MedScape/TheHeart.org, Metanomics, Philips Healthcare, Roche Diagnostics, CMAC Health Education & Research Institute; serves as an Officer, Director, Trustee, or other Fiduciary Role for AstraZeneca HealthCare Foundation and the Society of Chest Pain Centers (now part of ACC); and serves in another role for the American Heart Association and is the Deputy Editor of *JACC: Basic to Translational Science*.

Author Disclosures: Supported by a grant from AstraZeneca and AstraZeneca provided ticagrelor for this study. Dr. Whatling is an employee of AstraZeneca. All other authors have reported that they have no relationships relevant to the contents of this paper to disclose.

Medium of Participation: Online (article and quiz).

CME Term of Approval

Issue Date: April 2017
Expiration Date: March 31, 2018

From the [a]Massachusetts Institute of Technology, Cambridge, Massachusetts; [b]University of Pittsburgh Medical Center Susquehanna, Williamsport, Pennsylvania; [c]The Heart Doctor, Lancaster, Pennsylvania; [d]Department of Molecular Immunology, City of Hope National Medical Center, Duarte, California; [e]New England BioLabs Inc., Ipswich, Massachusetts; and [f]Cardiovascular and Metabolic Diseases, Innovative Medicines and Early Development Biotech Unit, AstraZeneca, Gothenburg, Mölndal, Sweden.
Supported by a grant from AstraZeneca and AstraZeneca provided ticagrelor for this study. Dr. Whatling is an employee of AstraZeneca. All other authors have reported that they have no relationships relevant to the contents of this paper to disclose.

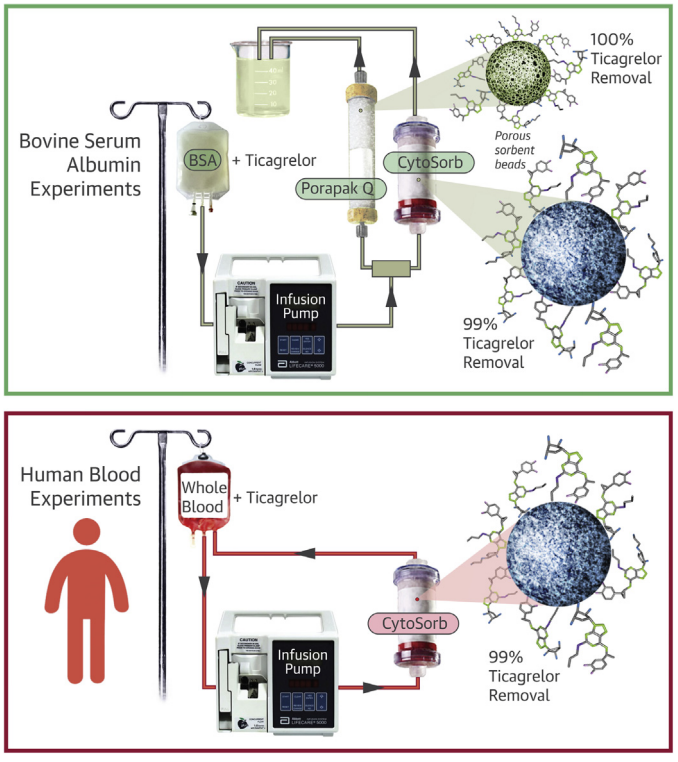
Manuscript received August 17, 2016; revised manuscript received January 17, 2017, accepted January 18, 2017.

JACC: BASIC TO TRANSLATIONAL SCIENCE VOL. 2, NO. 2, 2017
APRIL 2017:135–45

Ticagrelor Removal From Human Blood

George O. Angheloiu, MD,[a,b,c] Gabriel B. Gugiu, PhD,[d] Cristian Ruse, PhD,[e] Rishikesh Pandey, PhD,[a] Ramachandra R. Dasari, PhD,[a] Carl Whatling, PhD[f]

VISUAL ABSTRACT



Angheloiu, G.O. et al. J Am Coll Cardiol Basic Trans Science. 2017;2(2):135–45.

HIGHLIGHTS

- **Ticagrelor is reversibly bound to albumin.**
- **CytoSorb and Porapak Q 50-80 mesh remove ticagrelor from bovine serum albumin solution with >99% efficiency.**
- **CytoSorb removes ticagrelor from human blood and human plasma with >99% efficiency.**