

# UC Irvine

## UC Irvine Previously Published Works

### Title

Genetic Factors And Motor Status After Stroke

### Permalink

<https://escholarship.org/uc/item/4gm0k8zx>

### Authors

Cramer, Steven C

See, Jill

Aizik, Shlomit

et al.

### Publication Date

2015

### Copyright Information

This work is made available under the terms of a Creative Commons Attribution License, available at <https://creativecommons.org/licenses/by/4.0/>

Peer reviewed



 FREE ACCESS | **ARTICLE**

INTERNATIONAL STROKE CONFERENCE ORAL ABSTRACTS

SESSION TITLE: CLINICAL REHABILITATION AND RECOVERY ORAL ABSTRACTS I

## Abstract 3: Genetic Factors And Motor Status After Stroke

Steven C Cramer, Jill See, Shlomit Aizik, Babak Shahbaba, Steven L Wolf, Alexander W Dromerick, Carolee J Winstein, and and ICARE Investigators<sup>1</sup>Univ of California, Irvine, Orange, CA<sup>2</sup>Emory Univ, Atlanta, GA<sup>3</sup>Georgetown Univ, Washington, DC, DC<sup>4</sup>Univ of Southern California, LA, CA

Originally published 1 Feb 2015 | Stroke. 2015;46:A3

### Abstract

**BACKGROUND:** Genetic factors may help identify biological subgroups of patients with stroke. The current study focused on two specific genetic polymorphisms and examined each in relation to baseline values for the two primary behavioral measures used in the Interdisciplinary Comprehensive Arm Rehab Evaluation (ICARE) After Stroke study: [1] the Stroke Impact Scale (SIS-16), a measure related to impairment, disability, and handicap after stroke, and [2] the Wolf Motor Function Test (WMFT) time, which measures arm disability. Specifically, the current substudy hypothesized that [1] the val66met polymorphism for brain-derived neurotrophic factor (BDNF) and [2] the ApoE e4 polymorphism are each associated with poorer motor status by the SIS-16 and the WMFT.

**METHODS:** Of the 361 subjects in the ICARE study, genetic samples were acquired in 216. BDNF polymorphism and ApoE e4 polymorphism status were determined, then compared with scores on SIS-16 and WMFT as determined at baseline in the ICARE study, adjusting for age.

**RESULTS:** The 216 enrollees in this genetics substudy had age 61 +/- 13, were 67% male, and did not differ from the other 145 ICARE participants in age or race. The BDNF val66met polymorphism was present in 19.7% of subjects, and ApoE e4 in 29.8%; both polymorphisms were in Hardy-Weinberg equilibrium. Among those with the BDNF val66met polymorphism, baseline scores on the SIS-16 were significantly poorer (58 +/- 18 vs. 67 +/- 16, p=0.007); BDNF polymorphism status explained 6.5% of the variance in SIS-16 score. BDNF polymorphism status did not correlate with WMFT, and ApoE e4 polymorphism status did not correlate with the score on either behavioral measure.

**CONCLUSION:** Among enrollees in a phase III clinical trial of motor therapy after stroke, genetic variation related to BDNF polymorphism status accounted for a significant difference in baseline status for SIS-16, one of the trial's two primary endpoints, to a degree (9 points) that approaches minimum clinically important difference. Genetic factors may be an important source of variance to consider in studies of restorative stroke therapy after stroke.

---

## Footnotes

Author Disclosures: **S.C. Cramer:** Consultant/Advisory Board; Modest; GlaxoSmithKline, Dart Neuroscience, MicroTransponder. **J. See:** None. **S. Aizik:** None. **B. Shahbaba:** None. **S.L. Wolf:** None. **A.W. Dromerick:** None. **C.J. Winstein:** Employment; Modest; Professor Biokinesiology and Physical Therapy, University of Southern California. Research Grant; Modest; NIH HD065438 and NS056256. Other Research Support; Modest; Charles Dana Foundation.



[^ Back to top](#)



# Stroke

## AHA Journals

Arteriosclerosis, Thrombosis, and Vascular Biology (ATVB)

Circulation

Circ: Arrhythmia and Electrophysiology

Circ: Genomic and Precision Medicine

Circ: Cardiovascular Imaging

Circ: Cardiovascular Interventions

Circ: Cardiovascular Quality & Outcomes

Circ: Heart Failure

Circulation Research

Hypertension

Stroke

Journal of the American Heart Association (JAHA)

