

# UC Irvine

## UC Irvine Previously Published Works

### Title

Frontiers in human behavioral science

### Permalink

<https://escholarship.org/uc/item/1069r4j5>

### Journal

Neurobiology of Aging, 21(6)

### ISSN

0197-4580

### Author

Kawas, Claudia H

### Publication Date

2000-12-01

### DOI

10.1016/s0197-4580(00)00186-x

### 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

## Frontiers in human behavioral science

Claudia H. Kawas, MD

*Johns Hopkins University School of Medicine, Baltimore, MD, USA*

Received 26 May 2000; accepted 10 July 2000

The remarkable scientific and technological progress of the past decade has ushered in a new era for neuroscience research. With advances in molecular and cellular biology, and the windows provided by anatomical and functional neuro-imaging, we now have tools that will allow us to probe the mind and brain for the biologic underpinnings of our most complex behaviors. Long the purview of psychologists and ethicists, cognition, mood, emotion, even consciousness and moral judgments [1], can now be studied by scientists by imaging, genetics, and even molecular biology. Together, these investigations will undoubtedly bring a better understanding of the workings of the brain in health and in disease, and we will have many opportunities to develop scientifically rational, effective therapies for the disorders associated with our most human qualities. We stand on a frontier in neuroscience research.

To cross this frontier will require not only a wide variety of skills but also collaborations among basic and clinical scientists. At present, our laboratories are usually geographically separate and our research paths are divergent. But, laboratories working alone can no longer provide all the answers we seek. There is no single animal model of AD, or psychosis, or indeed most disorders of the brain that mimic all the features of human disease. Moreover, we must, of necessity measure and describe cognition and emotion differently in animals from the way they are recognized in humans. Most scientists work with a single species, animal model, or cell culture system. Although thought and feelings are uniquely and richly expressed in humans, we share the core of these qualities with other living beings.

Scientists working with humans, nonhuman models, and transgenic models need to develop parallel experimental paradigms and terminology to allow us to share and compare results more effectively. Only by synthesizing information from all of these experimental systems will we be able to translate findings from the bench to the extraordinary breadth of human behavior.

The success of our scientific efforts no longer depends on the rate of developing technology, for that is clearly intensifying, but on the success of collaboration and cooperation among disciplines that traditionally have not worked together in the past. We need to promote and enhance the effective melding of academic centers and industry as partners in research. And, as we develop new, integrated ways of thinking about human behavior, we must work with our colleagues in ethics to ensure that our science does not override ethical and moral issues that are an essential part of human understanding.

Doctor Cummings highlights enough research questions to fuel a host of research careers in a multitude of disciplines. An unparalleled opportunity exists for collaborations to bring about successful approaches to these intriguing questions. Interactions among many disciplines are needed to make full use of the expertise and burgeoning technologies. As we integrate our approaches to, and expertise in brain research, we will begin to understand. . . . and cross. . . the frontier that is human behavior.

### References

- [1] De Oliveira-Souza R, Mol J. The Moral Brain: A Functional MRI Study of Moral Judgement. *Neurology* 54(7) Suppl 3, April 2000.

---

*E-mail address:* pdavid34@hotmail.com (C. Kawas).