

# The Red-Hot Centers of Genius

Welcome to the next American century. The landscape of innovation has never been more dynamic, diverse, or digital. Human capital has trumped financial capital as the essential resource driving change. So the places mapped here aren't only about ideas; they're about the reality that applying and spreading innovations is as important as the innovations themselves. In short, these labs, agencies, and institutions are shaping the rest of your life. They aren't the only ones, of course. We've limited them mostly to centers of science, technology, and design. We've been arbitrary and opinionated. The good news is that all these places are creating breathtaking change. The better news: This is just a start.

BY MICHAEL SCHRAGE



**A. Department of Molecular Biotechnology, U. of Washington** SEATTLE  
Lee Hood's group designs the "machine tools" for tomorrow's genomic engineering. Bill Gates helped recruit the team. Think he knows something? ([www.mbt.washington.edu](http://www.mbt.washington.edu))

**B. Kleiner Perkins Caufield & Byers** MENLO PARK, CA  
The world's top venture-capital company (Sun, Genentech, America Online, Netscape, Amazon.com). Its failed bets tend to be as interesting to study as its successes. ([www.kpcb.com](http://www.kpcb.com))

**C. Departments of Electrical Engineering and Computer Science, Stanford** PALO ALTO, CA  
Heck with M.B.A.'s. Follow the swarms of undergrad engineering students, who'll be turning those outlandish business plans into the next generation of digital products

and services. They'll do the real work. ([www.stanford.edu](http://www.stanford.edu))

**D. IDEO** PALO ALTO, CA  
Nation's most influential industrial design firm. ([www.ideo.com](http://www.ideo.com))

**E. Xerox PARC** PALO ALTO, CA  
Snottier digerati mock Xerox's Palo Alto Research Center as a "national resource" rather than a cutting-edge R&D facility. But the lab that shaped computing for two decades remains world-class in research areas from social learning to interface design to nanotechnology. ([www.parc.xerox.com](http://www.parc.xerox.com))

**F. Pixar** POINT RICHMOND, CA  
Toy Story 2? Who cares? Pixar inspires the world's best computer-graphics design. ([www.pixar.com](http://www.pixar.com))

**G. Disney Imagineers** GLENDALE, CA  
Current generation—from super-computer designers to computer-

graphics wizards to mathematicians—guarantees the Mouse will lead in the technologies of pop culture. ([www.imagineering.com](http://www.imagineering.com))

**H. CalTech** PASADENA, CA  
Though not traditionally a hotbed of entrepreneurship, CalTech is becoming Stanfordlike in its efforts to innovate, especially in biotech. Still one of the few schools where undergrads are typically smarter than grad students. ([www.caltech.edu](http://www.caltech.edu))

**I. Gehry and Associates** SANTA MONICA, CA  
Benchmark for integrating aesthetics-driven architecture and computer-aided engineering. Bilbaos everywhere? ([www.foga.com](http://www.foga.com))

**J. Center for Evolutionary Psychology** U. C. SANTA BARBARA  
Mistah Freud—he dead. Leda Cosmides, John Tooby, and a powerful coterie of evo-psychs are kicking the neurons out of classical and

cognitive psychology in favor of more Darwinian explanations for why people behave—and misbehave—as they do. ([www.psych.ucsb.edu/research/cep](http://www.psych.ucsb.edu/research/cep))

**K. Santa Fe Institute** SANTA FE  
Blending physicists and economists with biologists and financiers, this center tries to figure out the hard math of complex systems, from the biosphere to the stock market. ([www.santafe.edu](http://www.santafe.edu))

**L. National Center for Atmospheric Research** BOULDER, CO  
Warmer or cooler? To the extent climate trends can be identified—or even modified—NCAR will influence billions of dollars of investments. Weather is the Next Big Thing in the global marketplace. ([www.ncar.ucar.edu](http://www.ncar.ucar.edu))

**M. Rocky Mountain Institute** SNOWMASS, CO  
A pioneer in efforts to make energy

markets more innovative. Amory Lovins's institute creates provocative concepts, from "negawatts" to hypercars, that energize even the stodgiest enterprises. ([www.rmi.org](http://www.rmi.org))

**N. Center for Twin and Adoption Research** UNIVERSITY OF MINNESOTA, MINNEAPOLIS  
Sometimes controversial, but twins are the best medium in which to explore the role of heredity versus environment in everything from aggressiveness to medical treatment to marketing.

**O. Washington University/Monsanto** ST. LOUIS  
From tomorrow's genetically modified "frankenfoods" to seed design to PET-scan innovations, this academic/industrial complex constantly generates ideas that translate into markets. ([www.wustl.edu](http://www.wustl.edu) or [www.monsanto.com](http://www.monsanto.com))

**P. National Center for Supercomputing Applications** UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN  
Supercomputers are the DEW line of digital exploration. What they do with high-bandwidth simulation now, desktops and the Net will be doing within a decade. ([www.ncsa.uiuc.edu/ncsa.html](http://www.ncsa.uiuc.edu/ncsa.html))

**Q. Carnegie Mellon** PITTSBURGH  
An unusual hybrid of hard science and technology and the performing arts, CMU is a petri dish of digital culture in which artists, techies, and even business types creatively crossbreed. ([www.cmu.edu](http://www.cmu.edu))

**R. Defense Advanced Research Projects Agency** ARLINGTON, VA  
The Pentagon's premier venture capitalist and prototyper birthed the Internet and most of the best research in computer graphics, artificial intelligence, and new

insect friendlies and insect foes. ([omave.usda.gov](http://omave.usda.gov))

**S. Entomology Labs** GAINESVILLE, FL  
Hate insects? Fear that global warming will bring plagues of fire ants and Asian long-horned beetles? This USDA lab will lead the bio-war against bugs and manage the ecological tensions between

**T. Immigration and Naturalization Service** WASHINGTON, D. C.  
Roughly half of U. S. graduate students in the sciences and engineering are foreign-born. The flow of human capital matters even more to innovation than the flow of financial capital. ([www.ins.usdoj.gov](http://www.ins.usdoj.gov))

**U. Johns Hopkins** BALTIMORE  
Still pioneers protocols for medical care and now also cutting edge in brain chemistry and gene therapy. Knows how to package innovations for the marketplace. ([www.jhu.edu](http://www.jhu.edu))

**V. Financial Engineering program, NYU Stern School of Business** NEW YORK  
What genetic engineers promise to do to the human genome, financial engineers are doing to capital and credit markets. Exotic new financial instruments mastered here will affect both institutional and individual investors. ([www.stern.nyu.edu](http://www.stern.nyu.edu))

**W. Watson Labs** YORKTOWN HEIGHTS, NY  
Heart of IBM's huge initiative to set digital standards in everything from memory technologies to silicon to wearable computing. ([www.watson.ibm.com](http://www.watson.ibm.com))

**X. Center for International Development** HARVARD, CAMBRIDGE, MA  
Finance ministers of the Third World—America's growth market—turn to Jeffrey Sachs et al. for policies and tools to

accelerate economic development and improve standards of living. ([www.cid.harvard.edu](http://www.cid.harvard.edu))

**Y. Whitehead Institute** CAMBRIDGE, MA  
Interdisciplinary approach to genomic research—bringing advanced math techniques to gene mapping and creating the first genetically engineered human cancer cell—has made it a mecca of medical genetics. ([www.wi.mit.edu](http://www.wi.mit.edu))

**Z. MIT Media Lab, Computer Science Lab, Artificial Intelligence Lab** CAMBRIDGE, MA  
This fractious trinity of digital innovators has carved out specialties—distributed cognition, things that think, encryption, software agents, and smarter networks—that make it a treasure trove for Silicon Valley headhunters. ([web.mit.edu](http://web.mit.edu))