March 11, 2010
DIYbio: Origin, Activities, & Scenarios for the Future

Jason Bobe
jason@diyb.io.org
DNA Explorer, $80
(Ages 10 and up)
www.discovery.com
Emergence of “Bio-Natives”

Anonymous sperm donor traced on internet

03 November 2005
NewScientist.com news service
Alison Motluk

LATE last year, a 15-year-old boy rubbed a swab along the inside of his cheek, popped it into a vial and sent it off to an online genealogy DNA-testing service. But unlike most people who contact the service, he was not interested in sketching the far reaches of his family tree. His mother had conceived using donor sperm and he wanted to track down his genetic father.
NYC Students Reveal Food Fraud with DNA Barcoding
Looks like "sushi-gate" wasn't the last of consumers' worries
By Jeremy Heu  Posted 01.04.2010 at 4:58 pm  6 Comments

Student Food Sleuths  Students show what's up with your food  Rockefeller University
18-year-old Jessica Terry suffered from stomach pain, diarrhea, vomiting and fever for eight years. She often missed school and her doctors were unable to figure out the cause of her sickness. Then one day in January someone was finally figured out what was wrong with Jessica. That person was her. While looking under a microscope at slides of her own intestinal tissue in her AP science class, Jessica noticed an area of inflamed tissue called a granuloma, which is an indication of Crohn's disease. "It's weird I had to solve my own medical problem," Terry told CNN affiliate KOMO in Seattle, Washington. "There were just no answers anywhere. ... I was always sick."
DIYbio.org aims to help make biology a worthwhile pursuit for citizen scientists, amateur biologists, and DIY biological engineers who value openness and safety.

DIYbio.org is fast becoming the organizational hub for amateur biologists worldwide, uniting the movement's participants through its website, online forums, blog and local chapters.
Who is DIYbio?

1. bio-entrepreneurs
2. investors
3. brilliant biohackers (5%)
   & biocurious amateurs & hobbyists (95%)
4. artists
5. moonlighters (academics / pro scientists)
6. educators
7. policy folks
Scope of Activities

Exploratory Biology

Personal BioMonitoring

Environmental Sensing

Biological Kits

Constructive Biology

Genetic Engineering

Environmental Sensing via GenEng

Hardware / Software / Wetware

Open Gel Box 2.0

SmartLab

Keiki Gels

Sharpie Microfluidics
DIYbio - NYC
3D Printing --> Low Cost Bio

DremelFuge - A One-Piece Centrifuge for Rotary Tools
by cathalgarvey

Description
DremelFuge is a printable rotor for centrifuging standard microcentrifuge tubes and miniprep columns. Compared to the cost of a new centrifuge (priced by a fellow Thingiverian at $500 minimum on Froogle), a DremelFuge is incredibly cheap.

* Used with a drill at 3000 RPM, the DremelFuge will deliver over 400g, enough to comfortably spin down Miniprep samples (proven personally). It will likely achieve acceptable results at lower speeds, too.
* Used at 10krpm, on a Rotary tool for instance, a DremelFuge should deliver over 4400g, more than enough to spin down bacterial cells.
* At 16krpm, DremelFuge matches commercial centrifuges.
* On a Dremel 300, a maximum speed of 33krpm equates to a force of over 50,000 times earth’s gravity, and will shatter microcentrifuge tubes (although DremelFuge will be unharmed by the experience).

To see some pictures of DremelFuge used to spin down cells, see here:
letters.cunningprojects.com/?p=85

Quick Video Intro to DremelFuge: youtube.com/watch?v=BSWnXeTZO_Y
(Update: This video hit over 1000 views! Thanks Makezine/Breel)

DremelFuge is available for sale as a high-quality, robust print on Shapeways.com in two editions, each suited for up to six samples at a time: DremelFuge Recessed Edition, to fit the cutting-tool-holder commonly found with rotary tools (5mm diameter bore), and DremelFuge Chuck Edition, which can be quickly adapted for use in any machine with a chuck grip. They are both available here on my Shapeways shop: shapeways.com/shops/abstrfromfags

The price including delivery to America is about $55, apparently. In Ireland, it is $65.
LavaAmp

BY GUIDO NÚÑEZ-MUJICA: VENEZUELA

$6500 of $6500 pledged

About This Venture
Describe your venture in fewer than 120 characters.

Rugged, accessible, DNA diagnostic tool to quickly respond to pandemics and neglected diseases

THE ENTREPRENEUR
Guido Núñez-Mujica
I am a computational biologist from Venezuela. I am a conformist focused on...

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This week you can pledge up to the full $6500 that a Finalist needs to raise to attend the Unreasonable Institute! Next week, the last week of the marketplace, the weekly maximum will also be $6500.

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$1000 or more in sponsorship: Invitation to stay for one night at the Unreasonable Mansion with the Fellows and Mentors

$2000 or more in sponsorship: One night at the Institute + Private invitation to the Unreasonable Conference.
This is the setup at the Livly lab (www.livly.org) in Mountain View, California. Livly is a startup biotech harnessing innate immunity to fight cancer. The lab is a shared space, open to other entrepreneurs and DIYbio types. Much of the equipment is salvage that John Schloendorn has found and restored to working order.

Photo by Eric Gentry. Used with permission.

http://www.flickr.com/photos/sugargiders/4044058001/in/pool-diylabs
The Pearl Gel Box – $199

* electrophoresis power supply sold separately

Gel electrophoresis box + built-in blue transilluminator

See DNA moving through your gel. Perfect for iGEM!

Get started in DIYbio

Hack your genome! Ancestry, eye color, height — start with a strawberry first.
$10 microscope
SHIPPING SCIENCE ACROSS AMERICA
Possible Futures

1. Network of community labs
2. Distributed bio-surveillance
3. Cottage industry for kits, “lo-fi” biology
4. DIYgem (i.e. “iGEM”)?
Amateur Rocketry

MODEL ROCKETRY
OTC kits (all ages)

HIGH POWER ROCKETRY
licensing, certification, coordination w/ FAA, etc.

Backyard USA

Amateur Saturn V launch in MD
April 25, 2009
Scuba Paradigm
How can we promote “bio-citizenship” in these communities?

“DIYbio.org aims to help make biology a worthwhile pursuit for citizen scientists, amateur biologists, and DIY biological engineers who value openness and safety.“
Security Interfaces

• BioWeatherMap.org: Distributed environmental sensing and surveillance effort.
• DIY-Forensics
If you could tell diybio members 1 thing, what would it be?

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