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E. chromi and The Scatalog

Aug 17 2010 Published by [Peggy](#) under [Brain & Behavior](#)

This is for the new "Carnal Carnival". This month's theme is poop, and will be hosted by Bora at a Blog Around the Clock.

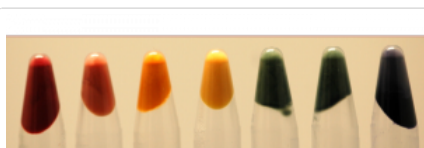
The [International Genetically Engineered Machine competition \(iGEM\)](#) is an annual contest in which student teams use a kit of "standard biological parts" to engineer bacteria with new and interesting properties.

There were 110 teams entered in the [2009 iGEM competition](#). Finalists included Valencia's "bio-screen" [lighting display](#) and Groningen's [heavy metal scavengers for cleaning polluted water](#). You can find [information about all the team submissions on the official web site](#).

The winner of the competition was the Cambridge team, for their [development of "E. chromi"](#): bacteria engineered to express a rainbow of different colored pigments. Although the bacteria are colorful enough to be used to [create bacterial art](#), they were [designed to be environmental sensors](#).



Displaying the Scatalog at the iGEM2009 Jamboree



E. coli Bacteria engineered to produce different pigments by a team from Cambridge for iGEM 2009

So what does that have to do with poop? The Cambridge iGEM team collaborated with designers [Daisy Ginsberg](#) and [James King](#) – who both use biotechnology in their art – to brainstorm potential applications for their design. One of the possibilities they came up with was [The Scatalog](#), which proposes to use pigment producing bacteria for inexpensive personal disease monitoring.

The idea is pretty simple: eat some tasty yogurt containing *E. coli* bacteria engineered to secrete different colored pigments in the presence of specific chemical signals. *E. coli* are a normal part of your [intestinal flora](#), so the bioengineered bacteria should be able to colonize your gastrointestinal tract. In a healthy system, only one color – say blue – would be produced, resulting in blue poop. Any chemical changes in your system, such as exposure to toxins or development of a disease, would cause your poop to change color. Just match your poop color to the reference turds in the Scatalog and you get an instant health assessment.

You can see [close-ups of the Scatalog in Guerilla Science's photostream](#).

Sadly, the Scatalog hasn't been developed beyond its colorful plastic poo samples. As experts [have pointed out](#), it may turn out to be too impractical to be implemented:

"I can see the popular appeal of this kind of *E. chromi* technology," said [Rick](#)



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Henrikson, who helps run the Point-of-Care Diagnostics Idea Lab at the University of California, Berkeley. “But as far as actual diagnostics, conceptually it’s a little far off.” Developing such a product, he explained, would require huge feats: getting the Food and Drug Administration to approve it, for example, and keeping the body’s immune system from attacking the bacteria.

What a party pooper!

Here’s a video of the creators explaining the project (there is unfortunately a lot of background noise that makes the audio a bit difficult to understand.):

Video: [Jam09 05 – E.chromi interview with Daisy Ginsberg and James King from mac cowell on Vimeo](#) .

Top image: [Bacteria producing different pigments created by Team:Cambridge for iGEM 2009](#)

Bottom image: Scatalog display at iGEM2009 Jamboree, [taken by jimhaseloff on Flickr](#) and shared under a [Creative Commons Attribution-NonCommercial license](#).

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Tags: bodily functions, microbes

6 responses so far



Lab Rat

August 18, 2010 at 11:04 am

Ha! I never thought of writing about the Scatalog for the Carnal Carnival! I think the funnest thing about it was opening the case in front of unsuspecting undergrads at the iGEM Jamboree. Daisy and James would go through this whole “E. chromi for medical purposes” talk, then produce the official-looking briefcase and open it to reveal ... poo!

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peggy

August 18, 2010 at 11:38 am

I like that they made the sample poops different shapes and sizes, just like the real thing.

On one of the pages there is a comment about how funny it must have looked when they were taking the sample kit through airport security on their way to iGEM2009.

[Reply](#)



Lab Rat

August 19, 2010 at 1:40 pm

If you squint hard you can see me (or the back of my head) in the video, I pop up just behind James’s right shoulder 😊

[Reply](#)



Katherine

August 18, 2010 at 6:02 pm

I misread one of the phrases on Flickr under the poo photos as “Please log in to comment on this poo.”

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[Tweets that mention E. chromi and The Scatalog | Everyday Biology -- Topsy.com](#)
August 19, 2010 at 3:30 am

[...] This post was mentioned on Twitter by Bora Zivkovic, E.chromi and S. E. Gould, ScientopiaBlogs. ScientopiaBlogs said: E. chromi and The Scatalog <http://dlvr.it/3wgFC> [...]

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Jame King

August 19, 2010 at 2:38 pm

Thanks very much for the write up Peggy!

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