

An occasional column, in which Caveman and other troglodytes involved in cell science emerge to share their views on various aspects of life-science research. Messages for Mole can be left at mole@biologists.com.

Any correspondence may be published in forthcoming issues.

... MY DEAR BOY,
OF COURSE IT'S TRUE THAT YOU ARE STUDYING THE DOMAIN
STRUCTURE OF A NOVEL UBIQUITIN LIGASE ASSOCIATED WITH
A MOTOR COMPLEX IN SQUID AXONS... IT IS ALSO TRUE THAT
MOST NORMAL PEOPLE WOULDN'T KNOW A SQUID AXON IF IT
FELL ON THEM... BUT IF WILLIAM BLAKE COULD SEE THE
UNIVERSE IN A GRAIN OF SAND - THE LEAST YOU CAN DO
IS PUT ON YOUR BEST HAWAIIAN SHIRT, AND HOLD DOWN
FIVE MINUTES OF LIGHT-HEARTED PRE-DINNER COCKTAIL CHAT
WITH OUR CHARMING HOSTS !!!



Money back guarantee II: the solution

You can't see it, but on the back of every box of modern research, just under the listing of nutritional content, fat grams, and calories, it says this: "If not completely satisfied with the entire modern concept of publicly supported scientific endeavor, return all current discoveries for a full refund." The writing is really small, but it's a legally binding contract. Nobody has taken us up on this...so far.

I think that the public *are* pretty satisfied with the whole endeavor, which I believe is generally referred to as "Science." But how do we keep them so? How can we make sure that people don't simply decide that it's just not worth all the money that they are spending to keep us studying baker's yeast, fruit flies, worms, inedible fish, and vermin. Muttering that our work is too complicated to explain properly is not going to work.

Here's a great idea: let's put out some press releases announcing that we're just about to cure cancer... and diabetes... and neurodegeneration... and heart disease... and baldness... and aging... and social injustice. We're really close. Wow! And the public yawn and say, "sure, we'll just put these with the other thousands of such announcements we've seen over the past 20 years, filed away in the landfill. And please *don't* tell us that you've solved the landfill problem too." (Okay, for those of you who haven't caught on, I didn't really think this was a great idea. I was being sarcastic. Being American, I am just not as good at it as the Brits.)

For years we've been telling the public that the latest finding is going to cure the diseases that they are really, truly, genuinely concerned about, and for those same years they have not seen this happen. People aren't stupid - okay, lots of them went to see Guy Ritchie's movie "Swept Away," so they're stupid about some things, but, when it comes to

spending their money on things like research, people can be very sharp. There are too many things to spend money on and not enough cash to go around, and perhaps people will decide that they just prefer to pay for schools or public transport, or maybe they will just keep it, rather than support *your* research.

So how do we ensure that nobody asks for their money back? We need to adjust our attitudes. Here's the checklist. (1) We've got to learn to explain to people exactly what it is that we do. (2) We've got to listen to and discuss science issues outside of our area of expertise, even really stupid ones. (3) We have to stop making nerdy checklists and start being cool.

(1) I can hear you whining already, "But my stuff is too specialized, it would take ages to explain it, and people want everything in a sound bite – they aren't interested in listening to me for the hours it would take to explain this and, hey, some of these people aren't even clear on the concept of a serine-threonine phosphatase!" Many of us have experienced this problem and we've *tried* to explain what we do at cocktail parties (those of us who are actually invited to cocktail parties, which I'm sure are lovely but apparently *not* given by people interested in meeting charming insectivores, but I digress...). And we've seen the eyes glaze over as we patiently try to explain nuclear magnetic resonance in terms our grandmothers would understand if they'd just listen.

So, attitude-adjustment time. There must be some fundamental reason that you are studying the domain structure of a novel ubiquitin ligase associated with a motor complex in squid axons, right? – some really interesting reason that makes you go to work on this every day?

You allow this to occupy your nights, your dreams and your daydreams. No? Then find something that does. Or think hard and come up with the reason that justifies all the money that is going into this work – it's the same as writing a grant – and you might just find, when you remember why this engaged you in the first place, that you are suddenly letting this slip into your waking thoughts. And that's a good thing, because the more interested you can be (and why should anyone be more interested in your work than you are?), the easier it actually gets to explain to someone else why it's interesting. And yes, in a sound bite. So here is your first assignment. Come up with one sentence, in non-technical language, that states what you do in an interesting way. Now memorize it. This is going to be what you tell people instead of saying, "it's very complicated and you wouldn't find it interesting."

(2) Talking about science in general involves *listening*, which is the hardest thing in the universe for scientists to do. Non-scientists have conversations that include lots of things like "that's really interesting," and "Gee, I never knew that." They often nod their heads in the affirmative. They don't say, "Are you sure? How do you know? But what was the control?" So when you talk about science that isn't your science, you have to appear interested, encouraging and positive – all things that scientists are basically dreadful at. It isn't helpful to begin with, "That's complete nonsense, the work is based on a flawed principle with no statistical significance."

And you have to talk about things that may not be interesting to you, but *are* interesting to the public, in an informed manner that shows people why science matters – acrylamide in fries, lowering cholesterol, power lines and, of course,

forensics (is it true that you can sequence an entire human genome while chasing a bad guy?). But this is all good – it lets you talk about how we know what we know and what we *don't* know (or assume), and why the difference is important. And it is an excuse to segue into the sentences you memorized in lesson 1. Wait for your cue, it will go something like this: "That's interesting about the St. John's Wort – do you work on that?"

Why do you have to do this? You are a scientist (okay, I'm assuming you are – if you're not and are just reading *The Mole* for something fun to do, well, I'm really, really sorry, but you need to re-evaluate your idea of fun). Okay, you *are* a scientist and this is your job. It's right there in the job description. Scientist – seeker of truth, wearer of fundamentally nerdy outfits and purveyor of knowledge. Knowledge is our product, the thing we make for a living. It's our *job* to turn research money (public or private) into pieces of information.

And the public pay for it – in a big way. They're entitled. We became scientists because when we were nonscientists (once upon a time), we came to realize that science is interesting, important and exciting – things like life on other planets, cryogenics and vitamin C... things that people are interested in now. We just have to remember what it felt like not to know so much science but to be interested in it, and, most of all, we must remember that this is why we're scientists: to answer questions.

(3) No problem. When you've learnt lessons 1 and 2, you will ooze cool. Trust me. Now go out there, we've got work to do.

Mole

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