

## Competition in Science

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Science can be a really nasty business. Competition in science is a necessity; it promotes a drive within the scientific community to excel.

Unfortunately as with any open competition it also promotes some not so favorable traits as well.

All the things we are taught about in school regarding how to treat science and even how to treat others is blown away in real life experience.

Scientists hoard their work, keep their data secretive, they don't like to discuss their projects until it is time to publish and present. They can be down right paranoid. There are labs that are controlled by armed guards. This atmosphere is definitely not the atmosphere that is expected.

Science is meant to be shared, ideas are supposed to be kicked around amongst scholars to gain different perspectives and different input.

What on earth is going on?



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## The Race to Win

The starter pistol goes off and people scatter, running toward the finish line, almost every race

starts with some type of event that indicates the race is starting. The crowds cheer their favorite contender along until the finish line. This is what has become of science.

The race usually starts with the announcement of funding. Once that whistle is blown people (scientists) start to gather around the starting line, vying for the funds [1].

This is where some of the nasty stuff starts, in order to be awarded those funds you have to be better than the rest at the starting gate. A few well placed rumors; maybe a few reminders of research gone bad could help in these first few steps forward. This is where science can get real ugly.

Scientists are compelled to protect their work so that they can be the first to discover whatever it is they set out to solve or discover. Science is fueled always by a need.

Research [2] is always geared to solve some type of problem regardless of the size of the problem. Solving a problem first can gain additional funding for future projects, bolsters the standing of the scientist within the research community and will lead to future recognition in the field.

## Scientist are People Too

Scientists are supposed to be impartial observers, experts at collecting data and interpreting the same.

Of all the occupations the world over these folks are supposed to be amongst the most ethical in their work, as a matter of fact ethics is demanded in all the sciences.

So what would make a researcher go bad?

How can there be stories in the media of stolen work? Very simply, scientists are people too. They are fallible. There is a great pressure to publish that is the only way work can be recognized is by sharing it.

There is also a drive to succeed based on several aspects:

- Positive peer recognition
- Financial gain
- Supervisor recognition
- Self efficacy
- Self esteem
- Pride

These are all very intrinsic human emotions that have to be considered.

Think about this scenario. Dr. Tom has worked on stem cell research [3] for thirty years, he is very close to identifying a key component for cloning stem cells, he has maintained the same data base for 25 of those 30 years, keeping meticulous data. He works all day heads home; his favorite journal [4] arrives in the mail, and there in lays an article regarding stem cell research.

He reads through the article and finds that much of his data is presented which has been used

to clone stem cells. The author has received much accolades for being the first to solve the problem, he is published and up for an award. Dr. Tom has spent his entire career focused on this problem, and now he can never be first all he can hope to do is duplicate someone else's work, which really is so similar to his own, that his work has been nullified.

Questions may arise as to how did this other scientist have Dr. Tom's data, and he may pursue the answer, or he may not, he may not want to be perceived as being jealous or vindictive. It may be that the data only looks very similar to his own. It may be coincidence but whatever it is Dr. Tom is pretty much out of a job.

This hypothetical scene is just to bring home the point that winning is not only about recognition and accolades it is much deeper. It goes beyond just the feel good responses; it can literally make or break a scientist. A life of devotion to research can be wiped out with one article. "The primary currency of academia is fame, and fortune follows fame," says Lita Nelsen, director of MIT's Technology Licensing Office.

"That's the game - publication. It's not about the money. Being second in academic findings is being last. There is no second in academia."

This quote just about sums it up, except Ms. Nelsen is more optimistic about the role finances play than most are.

## **Spies and Moles**

Labs are high security institutes now because of the competition that exists. They are loaded down with security equipment. There are some labs that are so secretive that they are protected by armed guards. The latest technology available is used to control access points.

Although it seems like the tactics and the day to day activities in some labs are straight out of a James Bond movie, there maybe good reason to take these precautions. Take a look at these items recently in the news:

- Police in New York arrest a former Brown University doctoral student for allegedly breaking into a lab where he'd worked, deleting files, and stealing computer data, antibodies, and a herpes virus. He later confesses that he acted to prevent someone else from getting credit for his work. (Boston Magazine, Stealing Science)
- A California state court jury has ordered Pfizer to pay \$38 million to a medical research firm for stealing trade secrets to develop the Bextra painkiller, which eventually was taken off the market. Jeffrey Frenster, the jury foreman, said there was a mountain of evidence that showed Pfizer improperly secured a treasure trove of medical research that had taken decades to develop. During three days of deliberations, Frenster said, jurors concluded Pfizer conspired with Hsu to use the data without paying tens of millions of dollars through a contract.

"We felt there was compelling evidence that Pfizer at some level knew

exactly what was going on there,” Frenster tells the paper. The lawsuit alleged Pfizer approached the foundation in 2002 to use its renowned database in clinical trials on Bextra, a Cox-2 inhibitor, a class of drugs that includes Pfizer’s Celebrex and Merck’s Vioxx. Mangano’s data on cardiovascular issues was considered crucial because of concerns the drug might pose heart risks which, in fact, prompted Pfizer to withdraw Bextra.

But according to court documents, Pfizer and the foundation could not agree on terms for use of the database. The lawsuit alleged that Pfizer arranged a side contract with Hsu, a lead statistician who provided the data without approval.

Citation: [www.pharmalot.com](http://www.pharmalot.com) [5].

These two cases illustrates how fierce the competition really is, and how willing big business is to undermine someone else’s research to promote their own.

## Does Competition Really Fuel Bad Science and Bad Behavior?

In an utopist society everyone would share. Everyone would be equal. There would be no competition to be the best. The reality is a bit different.

Competition to be perceived as the best is very fierce regardless of the field, but in a field where your livelihood depends on it, it takes on new meaning. It is very hard to expect that there will not be a certain amount of dishonesty generated by the need to win.

The fear of not being able to publish findings first can promote a lot of bad science [6].

- Shortened length of the project
- Smaller control groups [7] to get through the research quicker
- Misrepresentation of data
- Plagiarism [8]
- Falsifying data [9]

There is no easy way around scientific competition; it seems to be a necessary motivating factor for people to be motivated, to strive to do better than scientist before them.

Ideally the gusto that one has when they first discover a love for discovery would remain in tact, but it seems that after just a few short years, the attitude swings from a love of the research to more practical matters.

Much like first year med students who report at a rate of 65% that they choose medicine to heal people by the third year that dwindles down to around 38%, with the remainder marking other as their response when asked why they choose medicine.

Perhaps it is intrinsic to have that survival of the fittest drive, maybe we as scientist become jaded after awhile and hungry for recognition for all those lonely hours in the lab. It is hard to

say what happens, but it is sad but true to say that scientific competition promotes bad behavior.

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### **Links**

- [1] <https://www.explorable.com/research-grant-funding>
- [2] <https://www.explorable.com/what-is-research>
- [3] <https://www.explorable.com/stem-cell-pros-and-cons>
- [4] <https://www.explorable.com/academic-journals>
- [5] <http://www.pharmalot.com/2008/12/pfizer-must-pay-38m-for-stealing-trade-secrets/>
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