

How To Stay Motivated In Science?

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Participant

Hi all,

I am a chemist who discovered the power of enzymes late in my Master's degree, so decided to pursue a PhD in biocatalysis. As I ended up doing 2/3 of organic synthesis during that program, I wanted to join a biochemistry/molecular biology lab for my postdoc to really master protein engineering techniques, which is my current position. My initial motivation was to then work either in industry or academia at the interface of both areas to produce pharmaceutical compounds in a more eco-friendly way. However, recently I lost all my motivation as my postdoc project has been stalled for about a year and I am tired of struggling in science. To explain this a bit better: during studies I always got low grades, needed tutoring, but worked hard to get my degree. During my Master's last year internship in industry I was literally harassed by my supervisors telling me that I wasn't a good scientist and I shouldn't do a PhD. I kept going because some people told me that they were wrong about me and managed to get into a PhD program. I was happier then but I couldn't really conclude my projects there despite very hard work and had huge trouble writing my thesis (which took a really long time). That freaked out my supervisor and he didn't want to

recommend me for postdoc applications. However, I was really motivated and managed to get support from collaborators and a senior researcher to whom I reported, so I got my current position and again people around me told me that this PhD supervisor was wrong and blind at my qualities. Now in the current position, even though I produced some published side work, my main project progressed so slowly that my boss gave me now a 6- month probation contract, meaning that only if I reach a milestone I will be extended. And now the science itself it's so nicky that I'm just completely demotivated and as I am looking retrospectively at my career and past experiences I feel I'm not suitable for research or lab work. I can't even find the motivation to reach that milestone I committed to, but I have no idea of what I can do about my career instead either, as I don't find "out of bench jobs" appealing... Any suggestions to recover motivation? Ideas of alternative careers (no desk-based or administrative jobs please!)? Does anyone faced that? Did you consider quitting science at all?

Thanks!

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Nick Oswald

BMA MENTOR TEAM

Hi Y***

It sounds like you have been through the mill during your internship, PhD and postdoc. You have experienced a lot of angst about the progress of your project and you are hearing conflicting opinions about whether you should stay in science or not. Plus you have been pushing very hard to get success. So it is no wonder you are demotivated.

You can only “push hard” for so long before you begin to run out of energy — great careers are built on aligning your job and mindset to what you enjoy and are good at so that your work can flow, and then you can get enjoyment, and get good results without straining all of the time.

Your tough time suggests to me that something is out of alignment. There are a few possibilities, and things to consider, that I see:

1. Your starting assumption seems to be that you need to work/push hard to get anywhere; that everything is a fight for you. Does it really have to be that way? What if you stop fighting, stop pushing, and instead appreciate the abilities and qualities that you already have and work from there. The subtle distinction is that if you appreciate what you have/are instead of constantly criticising yourself (or accepting criticism from others) about what you are not (yet), you give yourself space to do your

work with self-respect and optimism. This means you are not crushing your energy every day and allows you to enjoy yourself.

2. You seem very open to criticism from others. I understand that – I was in a very similar situation to you early in my career. What I learned was that when people criticise you, you should take it on board only as a data point/feedback for you to evaluate for yourself — and never as the truth. I suggest you stop listening so

much to anyone who wants to give you negative feedback – especially if they are being harsh about it. Give yourself a break.

3. In my experience (and others can correct me if their experience is different) at least 90% of the work you do in science does not yield anything meaningful. As a scientist you have to be prepared for that. My approach was to focus on doing each thing as well as I could instead of stressing about the final result. That is difficult, but realising that focusing on this hour (for example) and doing your best in it can be very helpful in getting you out of the continuous locked-in stress about lack of results, which can be a self-reinforcing cycle. This might help: <http://bitesizebio.com/22154/stop-pushing-start-enjoying-and-get-better-results-at-the-bench-and-in-your-life/>

4. You say you want to stay at the bench. But at this point you feel that you are not suitable for research. That's a dilemma that is going to spin your wheels! Take a step back. What is it about staying at the bench that excites you and what doesn't excite you? It might be that you need to realign to a path that removes the demotivating part from your job and accentuates the exciting part. Here is my example: When I started my PhD I was dead-set on being an academic and winning a Nobel Prize. By the end of my PhD I realised that I quite liked being at the bench,

but the idea of very long projects that dragged on for years just depressed me. I needed science that had a faster turnaround. So I purposely looked for jobs that in biotech startups where the projects were shorter and snappier and the environment was ever changing so that even if I was in a project/approach that turned out to be frustrating I knew that it would only last for so long before I was able to change tack to a different approach or new project.

That switch solved it for me – I still wanted science at that point, but wanted quicker turnover in my projects. Later I came to a point where I didn't want to be at the bench any more so I took a different route. Which takes us to...

5. Quitting science. It always has to be an option that is open for consideration because you need to keep everything open for consideration at all times. My take is that at every point in our career we need to be evaluating where we are, why we are here, what is motivating us, what is demotivating and what feels like the correct next step to get more in line with our motivations. That for me is the way build a career that works for you, because you change as a person all through your life, so what you want and need at each stage might well change. This webinar I gave a while ago might help you in this regard: <http://bitesizebio.com/webinar/five-principles-for-creating-the-career-of-your-dreams/>

So in summary:

1. Put some consideration to how you can make your work less of a fight and more of a flow (so you get enjoyment and use less energy)
2. Work towards being less affected by criticism from others.
3. Get real to the fact that a lot of science doesn't work – take it easier on yourself when it doesn't work, and take criticism from others about slow progress with a huge pinch of salt (again, this

doesn't mean ignore the criticism – consider it and whether you can do anything with the feedback, but don't let it affect how you think of yourself as a person).

4. Really consider what you want, why you want it and how you can get what you want in ways that work better for you

5. Be open to all possibilities. Even quitting science if need be (although there is every possibility it won't come to that).



Participant

Nick,

Many many thanks for that extensive answer. I really appreciated! I wanted to have a look at the article and watch the webinar you recommended before answering. There's one thing that quite resonated with me in your career webinar, when you answered the question about time. What undermines me is that. I'll be totally happy doing research at my pace, but I'm a very slow person, slow thinker, slow learner...However, with that I also possess a huge amount of patience, which I initially thought would t in research as I do know how science can be tricky. Unfortunately, nobody seems to see it with those eyes... I guess that is what drained so much my energy and burnt all my fuses... I went into science (willingly, without anyone's influence nor trying to get the "perfect career") after debating a lot (with myself) whether taking a rather "artistic" career path and then I found that "aha, research is creative"! But as you said: I'm always producing results in panic, not being creative anymore, not having the bigger picture or the side options because I'm

constantly in stress... I quite like short and concrete projects as you, but then I fear going into industry because after my short experience in that outsourcing company I realized how unfit I was against deadlines and too frequent meetings. My current position is all about the same problem, as my boss noted that I've "been doing a good job, but alarmingly slowly". I guess he thinks the 6 month contract would push me forward, but I realize it's paralyzing me instead. So I find it really hard to slow down and enjoy what I'm doing rather than focusing on getting it done. Well, first because right now I'm bored repeating and repeating unproductive experiments, second because for the last 7 years I've just been told to speed up. I've been indeed trying to ignore those criticisms as you said (otherwise believe me I'd be out a while ago!) but that just put me in "pushing/fight mode". Right now I'd like just to stop and have an extended break from work to calmly think about it, but if I do so I'm afraid to lose my current boss's reference for future applications and as I have no 1st author paper yet, if in the end I do decide to stay in academia, that would mean start fighting again to get a position...



Nick Oswald

BMA Mentor Team

Hi Y***

This phrase stuck out for me in your reply: "[I'm a very] slow person, slow thinker, slow learner" There are a few aspects to this:

1. You are labeling yourself here, and it is a label that is pulling you down. When you do that, it tends to come true, you then get outside validation of that truth (e.g. from your boss) and then it becomes a cemented belief that dictates your life. You are creating a mental feedback loop that is making you more panicked and constricted and therefore slower and slower. You are literally talking yourself into being slow.

Give yourself a break. I suggest you relabel that to something more supportive of a positive opinion of yourself as a scientist. For example, you could start saying to yourself something like “I am a very meticulous person, detail orientated and exact”. And keep saying it to yourself and others instead the “I am slow” mantra. Once you take this story away, some of this will disappear – at least the feedback will disappear.

2. Start to appreciate your qualities and learn how to use them instead of fighting them. Don't try to be “faster”, learn to use your meticulousness to your advantage. I'd like to recommend some resources that I think will help you with that:

a. The work of Tony Schwartz... specifically a book called “Manage your energy, not your time”, which is summarised in [this article at the Harvard business review](#)

b. The work of Zig Ziglar — you could start with [this video on his website](#)

c. The book, the Practicing Mind by Thomas M. Sterner. Sterner is a professional concert piano tuner. In this book he talks about how he handles, and learns from, the need to be meticulous and focused in his job — and has some very useful views on how to “slow down in order to speed up”. [Here is his website](#), but the book is available on Amazon etc.

3. Basically you need to give yourself a break, get into your own groove and work it instead of derailing yourself by trying to be something you are not. It sounds to me like you need a break – which might be at least weekend, a week or a bit longer depending on your circumstances. In that break you need to rest and foremost be kind to yourself. Rest, do things you enjoy, get your serotonin levels up, then you will be in more of a position to refocus and move forward.

4. What is really de-energizing you is taking on criticism from yourself and others. Don't hate the fact that you are meticulous and use it as a stick to beat yourself with (or allow others to). Embrace it and find out how to make it work for you.



BMA Mentor Team

Hello Y*** and Nick,

Y*** I agree with Nick about focusing on your positive qualities and not giving others the opportunity to focus on what you feel are your negative qualities – such as being slower than others with research. Have you considered faculty positions where the salary is based on teaching and not based on obtaining grants? These positions will allow you to have less stress with your research, still train people in your lab, and still be able to do bench research, but your salary will be based upon your lecturing. Being in an academic position based upon grants will likely cause you greater stress because you will feel the “time pressure” while doing your bench science.

It definitely sounds like you need a break to recharge and boost your optimism. I am sure your 6-month agreement with your mentor is causing you even more stress right now, because science cannot be rushed. Try to remember that stressing about the 6-month time frame or stressing about the speed of your experiment instead of quality of your science is not going to help you get it accomplished any quicker or with any better results. You have earned a Master's degree and Ph.D. – these are accomplishments to be extremely proud of, so remind yourself of this occasionally! When you are always surrounded by peers and people who have their Ph.D.'s, it is easy to forget that earning a Ph.D. is not trivial.

Also remind yourself that just because other people can do an experiment faster than you can or might think “faster” than you do, that does not mean that their work is higher quality than yours! Definitely focus on your strong points and take criticisms worth a grain of sand, unless you think it is genuinely constructive criticism that you feel is worth using to improve yourself.

Best Wishes,
~Melissa



L***A

Participant

Hi Y***,

I'm sorry to hear you're having such a hard time in your career so far. Nick and Melissa have excellent points, as you've by now found out, but I thought I'd add a couple of points that helped me in a similar situation.

My company offers scholarships to people who want to study a post-grad degree, and I asked to be one of those people. Initially, they told me I was not good enough to do a Masters degree, but after a year of working at them, they let me enrol into an external Masters course that I could undertake at work. My initial topic was really difficult, and about a third of the way through, I stalled completely. I had weeks passing by where I didn't even look at my work. It was getting me down, and I had no idea where to go. I decided to start thinking more positively about myself at this point, I'm only human and there has to be something I can do to help myself. Then I tried to think outside the box. I spoke to some external interests in my project, and with their help I managed to retool my thesis so that it encompassed a whole different area, but included my work to date as a chapter, not as the whole scope. This allowed me to do different experiments, and get the lab work and research owing again. For every detractor out there, a hundred more helpful people exist.

I'm a slow reader and have been told I'm not that smart plenty of times, but I had read Cal Newport's book "Deep Work" and I used some of those principles to streamline my time and reduce distractions. It helped immensely, and only took a few weeks to develop into habits. In the end, I completed my degree and had a thesis that, whilst not world-changing, I was really proud of. I can't recommend Cal Newport's advice enough to anyone, in any eld.

I hope that you find what you like about science and continue pursuing that path! Good luck

L***A