



freedom  
of form  
foundation

# Protein interactions to be tested in the wet-lab

by **Tiltwolf** and **Zennith** on 22nd July, 2022

We're very excited to announce that we're moving forward on our first wet-lab experiment. For the past couple years, the Integument Review team, led by Tiltwolf, has been assembling knowledge about the biology of fur, scales, and feathers. They have worked to understand cell types, embryogenesis of the integument, and cell signaling. Crucially, they have also been proposing methods that can be used to engineer changes in the integument.

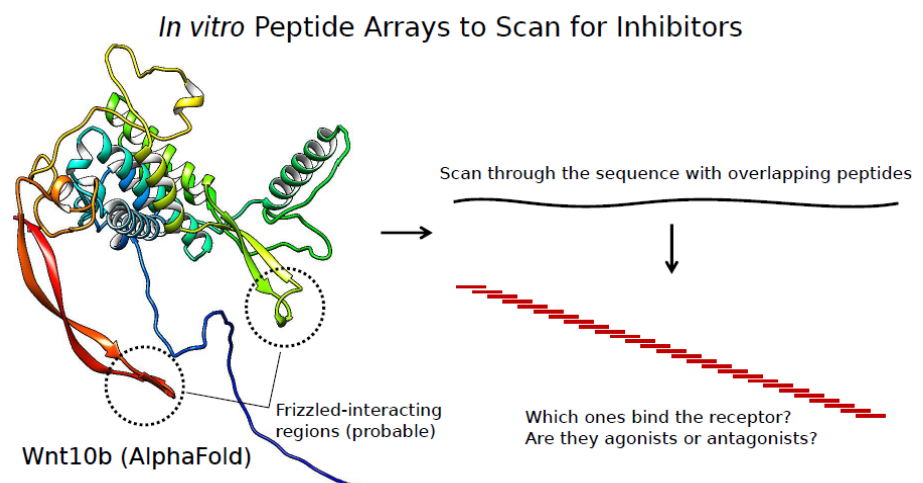
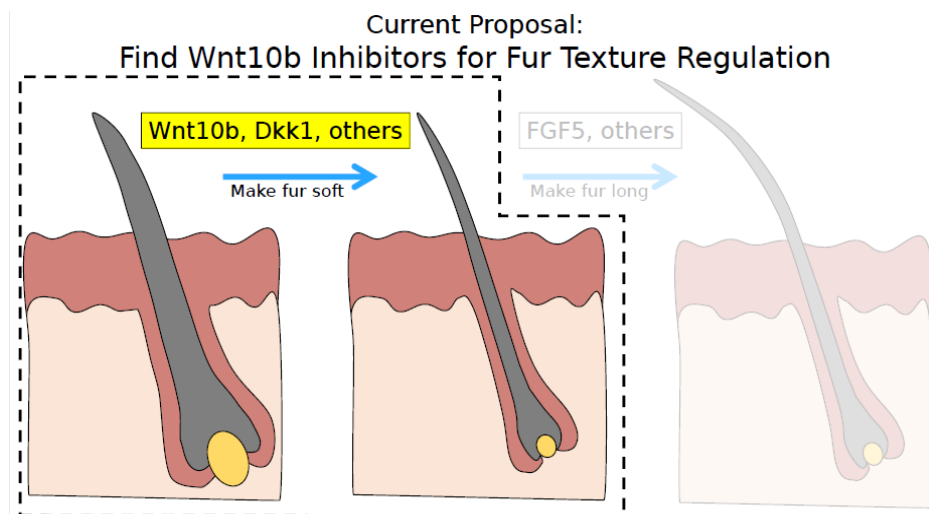
A hypothesis [mentioned in the May 2022 project update](#) is that a signaling pathway relevant to fur thickness can be modulated through engineering peptides derived from the Wnt10b protein.

Now, we will start to test that hypothesis in the wet-lab by screening for binding between Wnt10b

peptides and the Frz receptor.

More specifically, our aim is to make peptide modulators of Wnt10b-Frizzled receptor interaction, and since the exact sequences in Wnt10b required for binding are not known, we want to scan through the sequence in 16aa chunks, each chunk forming a peptide on an array of peptides that we can probe for binding to Frizzled receptors. The technique we'll be using is called SPOT synthesis, in which peptides are synthesized directly onto spots on a TOTD-functionalized cellulose membrane. Tiltwolf has extensive experience using this technique elsewhere.

For this research, we're budgeting \$5,000, including expected reagents, consumables, optimization steps, experimental repeats, and



room for contingencies. We plan to start within 2 months.

As mentioned in the May 2022 project update, there are several precedents, including the use of other homologous synthetic peptides as well as Dkk1 modulation. We are reasonably confident that, as long as we can identify a Wnt10b-derived peptide that binds Frz, that downstream signaling, and subsequent fur width, will be inhibited as desired.

Follow-up research would be needed to test whether cell signaling is modified in the expected way, and then check in live tissue whether fur thickness is indeed reduced. This follow-up research will be budgeted separately, but we would likely be looking at the range of high-four to low-five-figures when the time comes.

Of course, possible causes of failure always exist. We may not be able to find a peptide that effectively binds Frz. Or, despite previous literature, it's possible that even if our peptide binds Frz, downstream signaling is not modified, and/or is compensated in live tissue through other signaling pathways. Risk is part of the game - but no matter what, we'll learn something useful. And, for this specific proposal, there's a good chance we can directly solve one of the most important questions in how to make fur. Fingers crossed!

## Proud of how far we have come

by [Athamanatha](#) on 11th July, 2022

Four years and five months ago, I was among the original founding board members of the newly minted Freedom of Form Foundation, and I saw a charity with serious challenges to work on in order to ever become known even among furies, let alone the wider world. From bureaucracy to social media, from research and grants to community moderation, at the surprisingly capable squishy paws of Zennith, the organisation and its fantastic, eclectic

team have risen to each challenge and are steadily proving their worth for all to see.

Now the established world-leading forefront of morphological freedom related research and development, the Freedom of Form Foundation has interviewed celebrities and great minds, started funding and creating strong research, and begun to create exciting prosthetic prototypes. It has been a true privilege to witness and help to lead and support this growth as we go from strength to strength.

It is with great pride that I feel comfortable now to hand over the reins of our perhaps least glamorous role, Chief Compliance Officer, and our more generalist internal day to day running role, Chief Operations Officer. I am happy to know that the FFF has grown to a position where I can comfortably be simply the Vice President of the board and be kept busy enough with that, while these other positions I formerly held are in safe paws without my help being necessary.

As the charity grows stronger from even more great people joining it and increased donations, the needs for these roles have expanded, making them much more suited to being the specific focuses of specific individuals, a far cry from the 'many hats' stage of startup-dom. This is one of the signs of starting to reach a degree of organisational maturity and popularity that seemed very far away those four short years ago.

Thank you all for making such progress possible!

## Gender resources project progress

by [Zennith](#) on 19th July, 2022

Just before the start of 2022, we realized that there was an awkward gap in information available to people just starting to explore their gender and wanting to understand their

options. There's certainly a lot of information online - but coverage is uneven, and often doesn't present the right information in the right way for a beginner to make sense of it.

We realized this is something that we're uniquely qualified to help with, since many of our volunteers are transgender, with a healthy showing of non-binary people. Mix that with our team's scientific background - ability to evaluate evidence and maintain a solid degree of medical accuracy - and we can do a lot of good for people *now*, not just in the future. We can assemble no-nonsense information, oriented towards beginners, about currently-available gender affirmation treatment options.

We've achieved a lot of progress on this project, and have been copying over final drafts of the content onto our website. The Gender Resources project team, including Elapids, Moonbeam, Caedwyn, Iggy, Catra, and Nix, the Team Lead, has taken an amorphous project idea and turned it into something we should be ready to take the covers off of within Q3.

Readers will start at a landing page, briefly describing gender and what some transgender individuals may experience as gender dysphoria. The landing page presents the reader with three sections of more detailed content: *Gender and sex basics*, *What next?*, and *Transition resources*.

*Gender and sex basics*, like it says on the tin, covers the basics of gender and sex identity. It has some general suggestions for how someone questioning their gender might determine whether they are trans, and also defines many common labels and terms in one central place.

*What next?* gives an overview of action steps you can take for gender affirmation. Think of it as a way to help you plan your logistics. At minimum, we'll be including a flowchart and a guide on how to self-advocate in the doctor's office. There

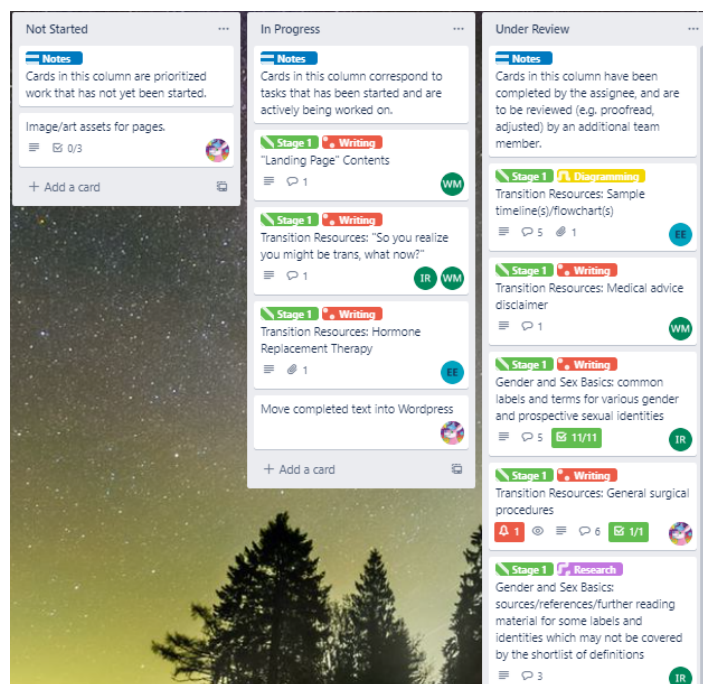
are some other things in this section that may make it into phase 1, but we'll see!

*Transition resources* contains more technical content, and is more specifically geared to particular genders. We have descriptions for HRT effects, as well as surgical procedure coverage for transfeminine, transmasculine, and non-binary individuals.

We still have a couple pages' worth of content to write, and we still need to find a few images to spice up the text-heavy content, but we're close. Oh, and we need to polish off the bibliographies - everyone's favorite type of task to procrastinate. ;3

I'm particularly proud of our team for what the team's Trello board indicates (see below). The team has given me one less thing to worry about!

- Most tasks out of the "Not Started" column!
- Only a few things still In Progress
- The bulk of the content in "Under Review", and based on the most recent meeting, most of that content is being accepted with minor or no further revision.
- Great distribution of tasks



# New Volunteer!

by [Birdy](#) on 19th July, 2022



Art by [Kisota](#)

Hi! I'm Birdy. I'm a researcher with the integument team. I'm currently working as a repair specialist for biomedical equipment with a background in hardware and software development. I enjoy programming, reading, hiking, building things, and biohacking in my free time; and hope I can combine those interests and experience to contribute to tackling the computational and biological puzzles on our path towards true freedom of form for everyone.

# Sending a Signal

by [Athamanatha](#) on 15th July, 2022

Let's spread the word far and wide: the FFF is looking for an electromyography engineer! We want to get signals from muscles and turn them into useful control for neuroprostheses. If you'd like to be the one who makes our tails wag and our ears twitch without us having to even think about it, we want to hear from you! If you know someone who should hear about this, tell them!

## [Electromyography Engineer role](#)

We're on LinkedIn, Youtube, Soundcloud, Google Podcasts, Breaker, RadioPublic, Spotify, Pocket, iTunes, Anchor, Twitter, Telegram and Discord! Why not check out our awesome perks on Patreon or if you prefer, drop us something nice via Paypal. You can also add us to your Amazon Smile orders in the USA! We have a variety of merch on sale in our Redbubble store...

This edition of the newsletter was brought to you by looking forward into the bold new frontiers of furry transformation future and realising that Japanese anime got there first... multiple times.

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