

Lab FAQ Guide

With Janoshik Analytical

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Introduction

Welcome to the Janoshik Analytical FAQ Guide. This guide is designed to provide answers to commonly asked questions within the research peptide community regarding the testing of research peptides. These questions and their answers have been gathered from the “Jano” channels of the PTSD, PGB, EGB, Retatrutide, and Roundtable Discord servers (some of which are no longer in their original iteration).

The reader is responsible for their own research. This guide and its contents are not intended nor implied to be a substitute for professional medical advice, advice from your physician or other health care professional, or any information contained on or in any product label or packaging. You should not use the information in this guide for the diagnosis or treatment of any health problem or for the prescription of any medication or other treatment.

Research products are not to be used as food additives, drugs, cosmetics, household chemicals or for other inappropriate applications. You should consult with a healthcare professional, and carefully read all information provided on or in any product label or packaging, before using any medication or nutritional, herbal or homeopathic product (including regarding any interactions between any medication you are currently taking and such products), before starting any diet or exercise program or before adopting any treatment for a health problem, or if you have or suspect you might have a health problem.

Research peptides are for research and development purposes. They are not intended for human consumption, medical, or therapeutic applications and should not be mistaken for or substituted as prescription drugs. Prior to buying anything from any vendor, check that it is compliant where you live with your current government laws.

We frequently mention research chemicals that are not made for human consumption and are not approved by the FDA for human use. Therefore, before purchasing any product for personal use, consult with your doctor or healthcare provider first. With your use of this guide, you acknowledge that you are an independent research professional over the age of 18 and are fully aware and knowledgeable about the health and safety hazards associated with the handling of research products and government regulations regarding the use of and exposure to such research products.

This transcription and Jano’s answers are offered as a courtesy and neither they nor anyone within the peptide community assume any liability.

Minor wording changes were made to the questions and answers to ensure proper spelling, grammar and context.

This guide will be updated as time and volunteer manpower allow with additional questions & answers from the “Laboratory” channels for the various servers/platforms which may include some not listed above. Anyone who wishes to volunteer to gather Q&A’s from March 2024 forward may contact the admin of any of the servers and they will be able to guide you to whom to contact to assist in this endeavor for maintaining this valuable information for the entire peptide community.

Company Information

Contact Information

Q: Where is your lab?

A: We are about a 20-minute drive from Prague, Czech Republic.

Q: If I were to send an email, are you the one reading them, or would that be a member of your team? Or is it better to ask via Discord?

A: It's always best to contact us via e-mail. I read only a small percent of the emails. My assistants, Kate and Jakub, as well as others on my staff, deal with the bulk of the e-mails. If it's something that they can't answer and my input is necessary, I see it, usually within 24 hours.

Q: What happens if I emailed you and did not receive a response?

A: If it was during the weekend, you surely would have gotten an automated email that we'll get to you on Monday. Please also account for the time zone differences, we are in the EU. If we don't answer for more than 48 hours (weekend not included), please, check your spam box, email us again, or try a different email provider.

Lab Reputation and Verification of Results

Test Result Validity

Q: How can I verify the validity of test results?

A: Follow the QR on the report. All reports I have ever issued are verifiable through <https://janoshik.com/verify/>

Lab Certifications and Standards

Accreditation

Q: Are you ISO17025 accredited?

A: We are licensed to work with scheduled substances. Proving adherence to GLP and GMP is a part of being licensed, but we don't have any formal accreditation, as in experimental and research work that is not really practical.

Testing Standards

Q: What recognized standards are there for testing, e.g. GLP-1s?

- A:** ISO and GLP certs are mostly necessary for testing that is to be legally recognized. Part of getting accredited for testing a particular compound is interlaboratory confirmations. Given we're not in business for pharmaceutical testing, the one that FDA requires, it's useless for us.

Testing Services Offered

Services

Q: Do you perform sterility testing?

A: Yes

Q: Can you test for Fentanyl in peptides? Should I test for Fentanyl in peptides?

A: Yes, I can; however, if I think a test is useless (heavy metals in peptides, endotoxin in non-recombinant peptides, fentanyl in random stuff), I will feel it's my professional responsibility to mention why I don't believe such a test is a necessity. Sure, I could charge \$50 USD to test for Fentanyl, but how would fentanyl make its way into the vials? I'd also guess the people would notice getting weirdly content and sleepy after their pins. Suggesting such a test would be akin to fear mongering for me, professionally.

Well drinking water "ain't" tested for Fentanyl either and neither is bread.

Q: Would it be advisable to request GCMS for peptides?

A: GCMS is not an option, because it requires samples to be volatile or semi-volatile, which peptides in their native form are not. GCMS's biggest strength, for my purposes, is usually the fact it can identify complete unknowns automatically, through an NIST library search.

Q: What do your peptide tests typically include?

A: With peptides, the compound, its amount and peptide purity is listed, nothing else, as nothing else is determined. I think the test reports and the details page on my site are pretty straightforward.

Q: Do your tests include checking for endotoxins and bacteria?

A: Sterility and endotoxins are separate tests. Although there really is no reason to expect either sterility problems or endotoxins in Chinese products, as time goes on, we have been finding there's more and more issues with sterility.

Q: Can you test for Trifluoroacetic Acid (TFA) content?

A: Yes! We offer TFA testing.

Q: Can you perform degradation rate testing for peptides?

A: Yes! Degradation tests can be done.

Q: I had a question on whether this item can be tested:

<https://www.firstchoiceequine.com/product-page/lipotropes-100mL>

A: Right now (as of 11/26/2023), we're too busy to even consider testing multi-compound solutions with various wildly different compounds.

As of 06/13/2024 "The test results for FCE Lipotropes were just released. Not only did it contain NO l-carnitine but instead it contained Hemineurine (95% match via GCMS). Hemineurine, also called clomethiazole, is a sedative and hypnotic which can be highly toxic or fatal in larger doses. Alcoholic solutions, the vial contains benzyl alcohol, multiply its toxic effects."

Q: If I were to send you some hot sauce, would you be able to conduct HPLC analysis on it to determine the exact amount of capsaicin present down to parts per million to determine a Scoville rating?

A: Yes, we can do it!

Q: Have you ever tested Mounjaro or Ozempic pens for endotoxins?

A: No

Other Testing Companies

Q: Is this [shows a COA report from Analyx Biolabs] a reputable testing company? I've seen Beligas reps post testing from both you and this company. <https://analyxbiolabs.com/coa-testing>

A: It's a fake lab that I will sue and get their site taken down by the end of the month. They also blatantly used my COA design, except they managed to make it disgusting and my site general framework as well. They have a location in a building that hosts no laboratories. If you have any idea where I can call Beligas out on fake lab reports, please, let me know, I don't have the time to investigate further. I've reached their upper management, and they took those tests down.

June 24 2024 update: They made changes which permitted them to keep their site online - but I believe PTDS managed to try them out with testing already to come to the necessary conclusion regarding their testing.

Testing Procedures/Processes

Mass spectrometry (MS)/HPLC/UV-VIS/Reference Standards, etc.

Q: Do you use mass spectrometry (MS) to identify other substances in samples? What other substances do you typically see on a mass spec hit list when testing these peptides?

A: We use MS for 95% of our testing as an additional confirmatory analysis, but we usually do quantity with just HPLC UV. It's plenty sufficient for 95% of *routine* testing. A lot of professionals fall into, "If I have MS I better use it". Unless you need to use MS for quantitative measurements, you don't. MS is inherently less accurate and less precise for quantitative analysis than UV.

Q: Can you use a reference standard and UV-VIS instead of MS for identification or is the HPLC way more accurate?

A: We use HPLC-DAD (DAD is a kind of UV detector). The UV-VIS spectrometer can actually be used too, however there is a risk of misidentification. The UV spectrums are extremely similar between proteins and peptides. You'd be hard pressed to tell Semaglutide from Tirzepatide by UV spectrum. That's the first issue. The second issue is purity. As the impurities in peptides are usually peptides as well, you run into the issue of an extremely similar spectrum. Basically, if your sample is 50% Tirzepatide and 50% some unknown peptide, UV-VIS alone cannot tell them apart. It measures everything at once. What HPLC does is separate the molecules in time - so they come out of the machine into the UV-VIS detector at different timepoints, which are specific for each molecule. HPLC is a separation technique that separates the compounds in the sample. It allows you to tell them apart and also tell the impurities. MS and DAD (UV-VIS) are just different detectors at the end of it. UV-VIS alone lacks the separation phase.

Q: Of the two types of HPLC testing, Normal Phase and Reverse Phase, which type of HPLC testing do you use?

A: RP HPLC - It is by far the most common and best. The general rule of a thumb is if RP is even remotely possible to use, to use that. Normal phase is a brutal pain in the ass, so much that it's barely used at all anymore. Instead, it's being mostly replaced by HILIC, which, I guess is normal phase, but not really in its original sense of word.

Q: Can multiple vendors share one test result?

A: Yes. First, one manufacturer can own multiple brands.

Second, there are brands that share the same product, and they can get issued multiple reports. I have multiple vendors, clients I've known for a better part of a decade, who are physically separate, e.g. US and CA, and have parts of their offer separate and part common - e.g. they purchased bulk batch of peptides together. Or, the same vendor has multiple brands, each aimed at a different clientele. We've had talks about permitting that within the company, as I can understand it can raise the concerns. Right now, our internal policy is to refuse such service should any doubts be raised and ban the client, if the situation warrants it.

Q: Do HPLC tests detect protein misfolds? Let's say an amino acid chain has no mutations or mistakes but does not reach its preferred folded shape due to some proteins not folding correctly 100% of the time. Does an HPLC test detect these abnormalities? If the answer is yes, how does this show in a Jano report?

A: Yes and no. For some they do, some they don't. Usually, it doesn't happen just like that, proteins have forces that make them fold in a particular way and only get folded differently if a) they are very big (not the case with glp1s) or b) something changes, e.g. disulphide bridge gets wrecked, which can be detected by MS, HPLC etc. and thus would become suspicious enough to investigate.

Q: What about a longer chain peptide like hGH? Could misfolds during synthesis produce a product that tests well but doesn't perform?

A: Frankly, I am not 100% on my answer, but I don't think so.

Q: When and how do we test for LPS?

A: Endotoxin test - 120 USD in 3/2024- recommended with recombinant proteins.

Q: When you test multiple vials from the same batch how tight are the distributions typically?

A: I am not used to seeing > 5% variability intra-batch with reliable manufacturers with peptides that they are experienced with. We regularly see <1% intra batch variability. But I have seen some wild stuff, from verifiably the same batch being +/- 30% in dosing.

Q: We had a recent 5 amino 1MQ batch tested. It came in at 82% and the vendor said this to me: I just contacted my colleague, and he said the test method must be wrong. You need to use HPLC test method. I don't see how qNMR would be so wrong with a small molecule. And let's be honest here, e.g. for Retatrutide there is a singular other laboratory in the West that does such testing. I find it much more likely that it is some salt. But short research shows that 5a1mq is often supplied as salt, so, you'd expect some sort of counterion there. eg. Sigma sells 5A1MQ iodide. Which means, that when you have a powder, 45% of it is iodine and only 55% is 5A1MQ. Inquire with the vendor about counterion / salt etc.?

A: If it is 5A1MQ chloride, then you do molar mass of 5A1MQ / (molar mass of 5A1MQ + molar mass of chloride): $159.21 / (159.21 + 35.4) = 82\%$. I can't judge that, because I don't know if it was a chloride. But if the vendor says that, then the math adds up perfectly.

Q: Why don't you report measurement uncertainty?

A: Because 98% of our clients don't even know what it is.

Q: For the last year or so, I have been pushing North American peptide companies to do "best practices." Of course, best practices refer to testing every batch for purity and volume. There are a couple of peptide geeks, mostly on reddit, who are constantly slamming me for using the term volume instead of mass when referring to COA's. They insist that using the term volume is incorrect?

A: The correct term for my COAs would be net peptide content. But yeah, mass is what people are looking for. Volume is not inherently wrong, as it can be used in that manner, it's just most unusual. Volume here not being a chemical/physical term (volume = how much space something takes up) but looking at it from the English language perspective (volume = amount colloquially).

Q: How do you ensure vials don't get mixed up during testing? A vendor claims a Retatrutide sample in October 2023 was mixed up?

A: We only received 1 Retatrutide sample in October.

- We have pictures and raw data. To prevent mixing up samples have a strict QA/QC system. So, we take a picture of the package as it arrives and is labeled. This also helps to ensure that if the tracking number doesn't fit perfectly, it can be backtracked (if necessary).



- Then, we label the samples. There is order number and sample number on top. There is also a QR code. We don't input the names by hand anymore. We scan with a QR scanner to prevent any errors in sample name input. (btw "Příjem" means "Receipt")



- Then, when we process the samples, they again get photographed to ensure the labels during batch processing are the same and no different sample made their way into the batch. Given that only a single Retatrutide sample was tested so far in October, there's no need to go way too deep into this anyway.

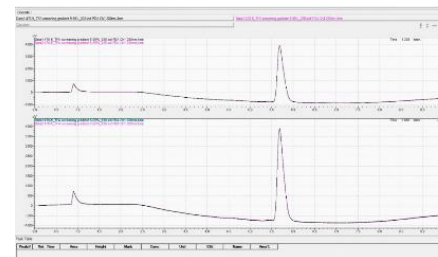


- Those labels are hard input into the software and cannot be edited. Here, the data is ready for processing. You notice that all of the data is doubled - each sample is independently prepared twice and tested to avoid random mistakes. The two tests should be close to each other (usually we tolerate < 2% RSD).

470-5_TFA screening gradient 5-95%_039	03.10.2023 15:55
470-5_TFA screening gradient 5-95%_038	03.10.2023 15:42
470-4_TFA screening gradient 5-95%_037	03.10.2023 15:29
470-4_TFA screening gradient 5-95%_036	03.10.2023 15:16
470-3_TFA screening gradient 5-95%_035	03.10.2023 15:02
470-3_TFA screening gradient 5-95%_034	03.10.2023 14:49
470-2_TFA screening gradient 5-95%_033	03.10.2023 14:36
470-2_TFA screening gradient 5-95%_032	03.10.2023 14:23
470-1_TFA screening gradient 5-95%_031	03.10.2023 14:10
470-1_TFA screening gradient 5-95%_030	03.10.2023 13:57

We can export a comparison here. You see the lines lining up to the point of not being discernible. You must really zoom in to see the different lines properly.

With all this, I can have really good confidence that the proper sample got tested. BTW, if you notice the peak in the graphs at around 1 minute, it is not an impurity, it is, most likely glycine, filler, which is used specifically by the vendor, which the sample was labeled as.



Q: What are on your test reports?

A: With peptides, the compound, its amount and peptide purity are listed, nothing else, as nothing else is determined.

Q: I came across a report from you that showed 86% purity. The seller said that it tested impure because of the glycine salt rather than arginine. Another lab gave the same substance a 99.7% purity based off that claim of glycine. Does that make any sense?

A: No, it was not because of the glycine. I am aware of the glycine being used as a filler in some samples and we don't count it as an impurity. It happened a couple times, but not this particular case.

- Q:** Would an ultrasonic bath, ultrasonic homogenizer or vortex mixer be destructive to a reconstituted peptide, specifically a gelled one?
- A:** We do ultrasonic baths/ homogenizers often when something has bad solubility. We don't notice any difference in purity readings.
- Q:** Can you help interpret the difference between these two reports? The vendors say that the one we sent is chloride and the XCE is iodide?
<https://xceptides.com/janoshik-5-amino-1-mq-nnmt-report-nov-20/>
https://janoshik.com/tests/35944-5Amino_1MQ_50_grams_2LJVBZYXKKF7
- A:** So, they say exactly what I do. XCE suggested my report is bad because they put > 50 mg in the pills. I asked them for CAS of what they put in. It's iodide. So, what I measured actually added up.

Understanding Test Results

TFA and Acetates

- Q:** Why can't I see TFA salt on a peptide purity test?
- A:** TFA salt is invisible on testing, as the test basically runs in TFA, so you're not seeing the drop of water in the sea. There's a different test needed for that. Any salt does reduce net peptide content and, given there's usually some salt (counterion) it's not quite telling.
- Q:** Should I test for TFA levels in peptides? Are they an issue? I read a study about a man with elevated liver values that they attributed to the TFA in the peptides he was taking.
- A:** Elevated liver values are very non-specific. The amount of TFA needed to cause notable liver damage would be notable. e.g. Halothane, an inhalant anesthetic is metabolized into TFA and can cause liver damage, but I suspect the amounts ingested to cause this are tremendous. I'd appreciate more measurements to be done [in the study]. Elevated 'liver' values can be caused by a heavy weightlifting session too. Still, TFA is not advisable for human use. If I remember correctly, the issue for TFA is it is toxic for cells in studies... *in vivo* so to say. As far as I can tell, *in vitro*, in human use, it is absolutely inconsequential.
- Q:** Are [Tirzepatide] acetate and sodium salts OK? Is TFA the salt not usually used in peptides for human use?
- A:** Acetate is perfectly okay, but it has solubility issues at the concentrations that GLP-1 are used from 2 [3] mL peptide vials.

Heavy Metals & Endotoxins

- Q:** Should I test for heavy metals in peptides?
- A:** Heavy metals are not involved in peptide manufacture, nor are the peptides ingested in amounts that would make trace contamination with heavy metals worth noting. Thus, I believe testing for them is not a good value choice. If you have trace contamination by heavy metals in

a peptide that you ingest 1 mg weekly it is a different story if you have the same contamination of food or drinking water, you ingest 15 kilos weekly.

Also, see the answer to the Fentanyl question.

Q: I have heard about many concerns about heavy metal testing in peptides from “Sal” of “Mind Pump”. Should we test for heavy metals?

A: Make him support his claim with literally any data and watch him shudder. Yes, I did say that heavy metals are not used in the peptide manufacturing process, and actually have my claims supported not only by knowledge of the peptide manufacturing process and consultation with independent scientists involved in peptide manufacture, but also by test results.

Q: Does purity testing include checking for harmful substances such as carcinogens, lead, mercury, etc.? Does this heavy metal and endotoxin testing occur with each instance of vial testing?

A: Only if ordered, those are separate tests.

Fakes/Fails

Q: How often do you get vials that are fake Tirzepatide/Retatrutide, don't have 99% purity or below the advertised volume?

A: 1/10 very roughly

Q: When you find peptides that are not pure, do you see any super harmful chemicals in them? Things that could put people's lives in danger? Specifically, Tirzepatide or Retatrutide coming from China. What does a typical fake peptide contain?

A: Testing doesn't really work like that; you can't just identify unknown like that. There could be plutonium mixed with fent and we'd not know, as we're not testing for that. Fake peptides are usually completely different peptides or are severely underdosed.

Outliers

Q: How often do multi-vial tests have an outlier?

A: Rarely

Peptide, General Info

Q: Does peptide content vs purity not matter for finished lyophilizates?

A: Net peptide content is important with peptides. You weight 100 mg of powder, net peptide content 94% means you have 94 mg of the peptide there. While in the vial you don't really care for the %. You can skip that and just want to know the total mg in the vial, which is what is listed on the report.

Q: Does Mounjaro® test the same as Tirzepatide? Does it provide the same results? Does one Semaglutide test the same as another Semaglutide?

A: The same amount of the same compound ought to yield the same results.

Q: Can research peptides have a different half-life than the name brand?

A: No, a molecule is a molecule. Tirzepatide from Eli Lilly vs Tirzepatide from China is the same regarding how long it takes for the body to metabolize/excrete half of the substance ingested.

Q: Can a peptide test correctly and not be "bio-available"?

A: Highly unlikely.

Q: Are there any peptides which have a color (other than GHK-Cu)? I had one recently (pancreagen) that turned yellow after reconstituting - but whilst lyophilized it was white colored like any other. Should I consider it unsafe?

A: I have never worked with pancreagen, unfortunately.

Purity/Impurity

Q: If two labs run an HPLC test on BPC-157 both should detect the same [substance / purity] regardless of what salt was used? But what would cause a test to see a salt as an impurity?

A: Counterion (salt) will not affect the amount of BPC-157 detected.

Q: Can different BPC-157 salts (glycine vs arginine) cause an impurity reading?

A: The counterion will not influence the amount reading and there is no difference in the testing protocol. Counterion (salt) will not affect the amount of BPC-157 detected.

Q: Is it accurate to say that the purity test also shows sterility? I'm trying to figure out how one can have confidence that during the process of vials being filled with peptides, the environment was sterile and no other particles are inside the vial?

A: No, it does not. However, sterility generally is not an issue with lyophilizates. There are not too many microbes that can survive either lyophilization or months while lyophilized. Those that can are not quite likely to find their way into the vials.

Q: Do you ever identify the impurities?

A: Not really, it's insanely difficult.

We've issued > 1000 reports in the last 30 days. Imagine spending hours on structural elucidation of impurities of 1000 samples. I'd be finished with the samples from this last month sometime in June next year. When important, we can do that, e.g. unexpected peptide switch-up, or people having severe health issues, but doing that regularly would have us charge amounts slightly different than we are. (Slightly meaning by a factor of roughly ten).

Q: What is the difference between analytical and pharmaceutical grade? Is there a cut off with purity? Are there extra fillers in the analytical grade? Or is it just more extensive documentation and compliance with the FDA and such that they set the Pharma grade standard? For example, if I can purchase Analytical and not pharmaceutical is this just as simple as generic and brand name or??

A: Analytical grade just means that the content is thoroughly standardized and is suitable for analytic use. To give an extreme, a lot of cyanide might not interfere with the analysis, so there's no objection to it being there. In reality, it's usually just each having different certifications, and it might even be the same batch.

Q: How does the efficacy of a peptide relate to its purity? Especially differences between like 99.5-99.9?

A: It's not. The amount of peptide is what matters for efficiency. Purity gives us an idea about quality of manufacture, degradation, age of the peptide etc.

Q: Do you normalize to a reference standard and class a 100% match as the stated purity of the reference standard?

A: Well, you test a reference standard and then you should make a calibration curve by testing multiple concentrations. If you are, however, skilled enough to know, you can use single point calibration. Then you take the area under the curve of the unknown sample and perform the following calculation:

Area under the curve of the unknown sample x concentration of the standard area under the curve of the standard.

Q: Do "broken" peptides (that aren't active) usually comprise most of the impurities in a purity lab result? Or can you tell that using HPLC?

A: Yes, indeed.

Q: Why do Test-C test results only have quantification, but not purity like peptide tests?

A: Because with finished anabolic steroid preparations, such as oils or pills it is not possible to tell whether other random stuff detected is from the oil/filler/steroid. In peptides, there's a consensus to use 220/280 nm normalization procedure, as the fillers ought not to absorb in either region or be easily identifiable and well characterized (e.g. cresole).

Q: Just had some DSIP tested and in my opinion, it's garbage. The sales rep claims that all vendors have different ways of testing with different results. The purity came out to be 88% vs their 98%. Is the way it's tested a worldwide standard?

A: There are differences between vendors doing the testing, different approaches, etc. Some differences are normal, but they ought not be major. When you test something for purity like that, you first take your solvent and test it without the sample (the "blank").

I have checked the report - given it's at 214 nm (which is a pretty low wavelength) you might want to check out the blank sample. Then you test the sample, so you can discern the impurities that are in the sample itself, and which are caused by your machine, solvent, etc. So, if you want to know if the impurity is really from the sample, you take one empty 2mL autosampler vial (the ones that are actually put into the machine) and do everything like you would with the sample, but without actually adding the sample.

I'm just explaining what the lab ought to do so the purity reading is more reliable. Generally, it is not a custom to provide blank reports with certificates of analysis, so there's nothing wrong

with that either. It is just something that a professional in the field would like to see in that report, as the purity reading is done on a low wavelength and the result is disputed. Sometimes it is not necessary, but it always helps - especially if the vendor disputes the result.

Q: Is there a minimum purity safety standard for human research? I've seen some say 90%, 96%, or 99%.?

A: No such thing exists. Each peptide / protein has different standards and not all impurities are equal. But in general, yeah, the higher the number the better. Generally, if you notice some standards for therapeutic peptides, you can see numbers like 89% being acceptable, etc.

Q: This is a recent test result for 5-amino 1mq powder. This is the COA from the vendor. Are these results incompatible or is there a possible explanation to reconcile them? I have now requested HNMR from the vendor. So, can the purity number and the 83.2 m/m be compatible?

A: I don't know what exactly they mean by HNMR purity. What our NMR facility did was weigh the powder, calculate how many hydrogens should be there in total and compare it to what was measured. They made a ratio of that. To put it simply, I don't know what exactly they did, but the most likely option is that the result should be the same. But I am vaguely aware of other possibilities.

CERTIFICATE OF ANALYSIS
HUBEI YANZHI PHARM CO., LTD.
Product Name: 5-Amino-1mq Quantity: 100g
Mfg Date: 2023-05-11 CAS No.: 42464-86-0
Batch No.: 1001202311 Expiry Date: 2025-05-10

Item	Specifications	Results
Test Date	Specification	Result
Appearance	White to light yellow powder	Conforms
Purity (HPLC)	≥98.0%	83.2%
Water (H ₂ O)	≤0.5%	0.2%
Residue	≤0.1%	0.1%

TEST REPORT
Task Number: #15944 Testing ordered: 06 NOV '23
Sample received: 20 NOV '23
Client: Discard Peptide Testing Group
Sample: 5-Amino-1mq 100 grams
Manufacturer: Hubei Yanzhi Pharma
Batch: 1001202311
Order: 10/22/23

Sample description: 5-Amino-1mq 100 grams
Results: 83.2% Purity
Comments: 83.2% Purity

Analysis conducted: 01 DEC 2023
Verify this test at www.janoshik.com/verify with the following unique key: 36-10202027

Q: What does the reported purity percentage represent?

A: Target peptide / total peptide, simplified. Not including mannitol, etc.

Q: Is peptide purity the only metric we should be aware of when it comes to peptide efficacy?

A: Peptide purity doesn't affect the peptide efficacy, only dose does.

Q: Correct me if I'm wrong, but if we're getting tablets tested or capsules tested that have filler, you cannot test for purity, right?

A: Correct, we only evaluate API amount in tablets/capsules.

Peptide-Specific Questions

AOD-9604

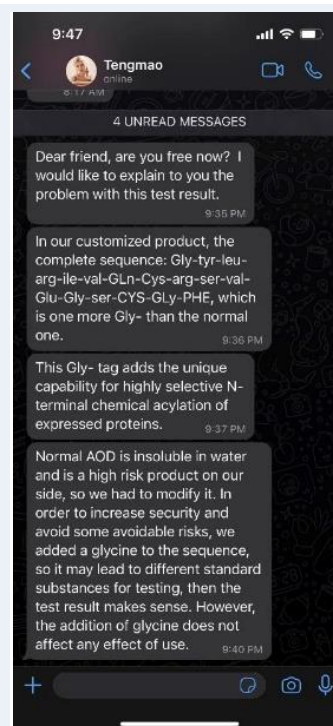
Q: We sent a sample that was supposedly AOD-9604 and came back none detected. The vendor said there was an extra Gly- added on and that's why it was not detected. Any truth to this claim?

A: No idea whatsoever.

Q: I got this lovely message from Henan Tengmao in regard to the recent AOD-9604 test we received back from you last week.

This vendor tested at 89% purity and around .80 quantity.
Trying to come to resolution with them and they sent this?

- A:** I've checked and recalled which batch of testing that sample was from. Such modification would not influence purity nor amount calculated in such a way. If they claim they've done a modification in order to improve the solubility on their product, then why (as per the comment) did it gel immediately? By immediately, I mean immediately. My lab worker was astonished by that. I don't think any other AOD-9604 from that batch of tests did it in such a way. That doesn't sound like a good modification to improve solubility to me. We use ultrapure water. Basically, just H₂O. But what we're seeing is different vials from the same batch of AOD-9604 behaving differently.



BPC-157

Q: Any chance they sent ARG BPC-157 instead or would that have been an easy catch, too? It's a lot less soluble, too, and I think there were some issues with that with this batch?

A: Nah, don't think so.

Q: How do you test for specific peptides (e.g., BPC-157, ArgBPC-157)?

A: We don't look for arginine, unless it is specifically requested. If you request an ArgBPC-157 test, we look to see if it also shows arginine and if its amount stoichiometrically fits and then the report says Arg-BPC-157-157. For this test, we generally need 30 mg raw powder at minimum but 200 mg ideally.

Cagrilintide

Q: Do you have a standard for Cagrilintide?

A: Yes

Cerebrolysin - Stability

Q: Any truth to the claim that once you open a vial of Cerebrolysin you must use it right away and can't transfer to a multi-use vial and use over the next few days? Seems like nonsense to me?

- A:** I don't know anything about it, but how would something so sensitive even survive transport, manufacture and in vivo? So, I agree with your judgment.

Test CJC-1295/Ipa combo

Q: If I have a CJC-1295/Ipa combo, how does it get tested for purity?

A: They don't, is the easy answer. I think there's also mass confusion on what purity means. Purity isn't saying that in the entire vial, it is 99.987% [insert peptide name here]. It is saying, of the [insert peptide name here] that is in the sample, it is 99.987% pure of that peptide against itself. Meaning that the peptide can degrade, which will lower purity or if there are amounts of other peptides in there the purity will go down. Purity is only measuring peptide against peptide. The purity measured is roughly this - target peptide / total peptide content via 220/280 nm normalization. With combos, I simply am not seeing an alternative protocol that would be as simple as that, and I really like simple - leaves less room for me to screw up stuff.

DSIP

Q: Have you tested DSIP before?

A: Yes, we have tested dozens of samples of DSIP.

Desmopressin

Q: Do you test other things, like desmopressin?

A: Yeah, we should even be able to do that in-house.

Epithalon (Epitalon)

Q: I have reconstituted Epithalon testing at 1-2 pH. Do you have any insight into how pH can affect peptide chains?

A: I don't know if Epithalon is pH sensitive, but frankly, I wouldn't think so. And remember, anything you inject becomes pH 7.4 the moment you inject it. Bodily fluids can buffer a lot more than a mL of liquid subq.

Galcanezumab

Q: Would you be able to test CGRP blockers, like Galcanezumab?

A: It'd be extremely troublesome for us - we could figure out the rough amount and whether the molecular mass roughly fits.

Glutathione

Q: Can you test Glutathione quantity and purity?

A: Yes.

hCG & HGH

Q: I heard Peter Attia say hCG is so fragile that if you dropped the vial, it would be useless?

A: I don't find it likely that it's that fragile or mechanically sensitive.

Q: Can you take a look at this article and let us know if the HCG and HGH we get from the Chinese and Pharma sources is synthetic or derived from humans?

https://reddit.com/r/medicine/comments/1ae8ph6/paper_on_cases_of_transmitted_alzheimers_disease

A: HGH is all recombinant, thus no need to worry about that in regard to prions, imo. For HCG, there's both urine-derived and synthetic. However, the likelihood of urine-derived HCG containing nervous tissue prions is significantly (read as nigh impossible) lower than nervous tissue prions being in pituitary extract.

Q: Is there a reason that most HGH doesn't test above 98% or so? Just quicker degradation? I know most peptides we expect to see at 99%+ in order to feel like they're acceptable.

A: HGH is a far more complicated molecule than most of the peptides made with recombinant process (different from synthesis, that most peptides are made with).

Q: What is the difference between 98% pure brand name Somatropin and generic hGH testing also at 98%? Let's assume both have no detectable dimer?

A: Maybe endotoxin? 1 iu of generic will be the same as 1 iu of pharma.

Q: What's the difference between AOD-9604 and HGH Fragment 176-191 exactly?

A: AOD-9604 has molecular mass of 1815 and HGH Frag 176-191 has molar mass of 1799 if I'm correct. That's how I discern them now. Other than that, from my limited understanding is that they act the same, just different half-life.

Q: HGH here, already refunded so no issue, but I'm wondering what these little strands might be. I've put it through a .22-micron filter and they're still in. The liquid moves like water, but they swirl around slowly like you'd see bubbles move in oil. I'm intrigued?

A: Aggregates I'd assume. I wouldn't use it.



HMG

Q: Any chance of testing HMG in the near future?

A: We have the ability to refer HMG samples to a 3rd party lab, but even they had issues with testing. It has a really high margin of error. It's also rather expensive and takes a while. And we need some of the manufacturer's data to provide IU - otherwise the result will be only in mcg.

Mazdutide

Q: As of March 2024, have you tested Mazdutide yet?

A: As of June 2024 - yes, a lot of it.

NAD+

Q: Why do you outsource NAD+ testing?

A: NMR is better suited than HPLC for something like NAD+, especially in that it requires near no methodology. As of 06/13/2024, we do have an in-house method now for NAD+.

Q: Is NAD tested for purity? I was told since it's not a peptide purity testing isn't done?

A: Correct, not with finished products.

Q: Any input into the claim that testing methodology was flawed for the NAD tests?

A: I can't prove or disprove that. We've done a lot of verification on the tests we've done and there are either big differences between the vials, even the supposedly same batch or dissolving supersaturated solutions reliably is simply... not going to work. But given we've tested 10 NAD+ samples just today, I'm now much more confident in my methodology.

Q: Can you reveal in general terms if any NAD+ seem to test close to what they 'should' have been? Or at least close to even numbers? heh (I guess 100, 180, 500 are common)??

A: Well, directly from a vendor, we've tested 2 samples that were perfectly on point.

Q: Can NAD+ be tested for purity?

A: Not in the way that peptides can. Peptides are among the few things that can be tested. Due to the fact that the normalization procedure is well established in the scientific community. But no such thing is available for NAD+, as far as I am aware. No defined purity for NAD+. You would need to define what NAD+ purity is, and then we can discuss how to measure it.

Q: A manufacturer's test results [for NAD+] have been inconsistent. They are saying it is due to pH and testing methods. They are saying they need a 20% fluctuation in the overall dosage because of this. The last test for [NAD+] we got was over 500mg for a 500mg vial, so it looks promising. We just didn't understand why there would be inconsistency on the results?

A: We see results differ between vials of the same batch much more than with peptides - but then, peptides are seldom dosed in hundreds of milligrams and in supersaturated solutions.

Q: I am considering a 1000mg vial of NAD+. Is there a minimum mL of BAC that is needed to fully dissolve it? Is there way to know the minimum mL of various peptides that is required to dissolve a standard mg?

A: I honestly have no idea at all and generally I go by googling the various data from reputable sources and experimentation.

Polysulfated Glycosaminoglycan (PSGAG)

Q: Are you able to test something like Polysulfated Glycosaminoglycan (PSGAG)?

A: That's quite an issue actually. It's not a singular compound. It's a bunch of molecules with random molecular mass. You can have subunits linked together 20-200 at a time. So, we're not touching it. But, if you email us your request, we can inquire with some of the labs we cooperate with. I believe they've done something like that before. Our NMR lab has experience with that sort of things, and we outsource it to them.

Retatrutide

Q: What would account for Retatrutide from different sources testing well, but not having clinical effect?

A: I can't help but answer with a shrug and a confused facial expression.

Q: Since no published standards for Retatrutide exist at present, does this present unique challenges to you in your analysis and to consumers looking to evaluate product efficacy?

A: Yes, before we run analysis, we either need to use the slow, expensive, and more prone to error, standardless methods of testing (qNMR) or make a standard of our own first. For example: the first analysis of Retatrutide took a little bit over a month. The second took about 30 minutes.

We ran qNMR, LCMS and primary structure theoretical A280 to standardize a sample that we now use as such. When you have an unknown sample of suspected compound of interest that you wish to standardize, you run an LCMS to confirm identity, then qNMR / others to confirm quantity. You then do HPLC measurements to get a comparison benchmark of that (as HPLC is about 400x faster and much cheaper). Plus, molecular mass and sequence are publicly available.

Serostim

Q: Have you ever tested Serostim? Curious how it compares to the ugl versions?

A: Yeah, tested... well.

TB-500/TB4 (Thymosin β 4)

Q: I'm reading that TB-500 is specifically only Frag 17-23 of TB4. Different molecular weights (4963 vs 889), different PubChem ID, etc. in your reports, you mark as "TB-500 (TB4)" can you distinguish which one is present?

A: Yes, easily, but the nomenclature is not clear for experts, let alone normal people. We distinguish between the two. If it's the 43 amino acid sequence, then we identify the compound as TB-500 and then between the brackets I write TB4. That's how I label the 43 amino acid one. As the nomenclature is inconsistent, as you've noticed, that's the process I use. And if it's just

the short fragment, the 7 amino acid one, then I list the molecule mass, 889 in the comments and I don't write TB4 anywhere on the record.

Tesofensine

Q: Do you do Tesofensine tablet testing?

A: Yes. We charge a lot for it, as it's a novel molecule. And I believe we're like the only ones who can test it properly.

Q: I received an MZ test result for Tesofensine capsules. The results stated, "Purity not applicable due to capsule filler interference." Is this typical for testing capsules? Is the purity not applicable because it's a 500mcg dosed capsule?

A: That's because MZ can't really determine the amount of mostly anything. Let's imagine that (most) every chemical compound has a "color". Most of those colors are invisible when dissolved, as those "colors" are in UV range. Well, anyway, let's just imagine you have Tesofensine, which is (made up) mostly red, mixed with salt, which is mostly transparent, with a hint of blue. MZ calculates purity by HOW MUCH RED OUT OF TOTAL RED IS THE TESOFENSINE. You can see why this method is something I consider in the direct conflict with harm reduction. I've been aware of MZ Biolabs and Ken for quite some years now. A lot of vendors selling SARMS (selective androgen receptor modulators) use or used to use them. Mostly, because when you are looking just for marketing material, you just want some 99% numbers, and this kind of testing will eagerly provide that.

Thymalin

Q: Can you get a quantity test on Thymalin?

A: Yes

Q: Given that Thymalin and Thymulin were identical in your testing do you have any way to know which one you are getting? Thymalin CAS 63958-90-7. Pyr-L-Ala-L-Lys-L-Ser-L-Gln-Gly-Gly-L-Ser-L-Asn-OH. Thymulin Acetate (CAS .79621-14-0). Pyro-Glu-Ala-Lys-Ser-Gln-Gly-Gly-Ser-Asn. Can you confirm that in all your testing, you have only received one substance called Thymulin/Thymalin?

A: They all test the same for me to the point I consider Thymalin/Thymulin synonyms. I don't really have data on hand for the sequence. But, as of 11/21/2023, I now have LCMS working and can do some measurements on those. Update 06/2024: Sequence: Pyr-Ala-Lys-Ser-Gln-Gly-Gly-Ser-Asn-OH.

Thymosin A1 (TA1)

Q: Do you have information regarding Thymosin A1 (TA1) specifically? I've read and seen people discuss recently that it is much less stable for some reason. Is it difficult to keep active and does it need special types of reconstitution?

A: I personally haven't noticed anything too significant with TA1.

Tirzepatide

Q: Can you test reconstituted Tirzepatide (Tirz) for both purity and volume?

A: Amount + purity... well, yeah. Well, concentration + purity. Though you have to hope that the diluent wasn't contaminated. Otherwise, the purity will be whacked.

Q: I was wondering if you could shed any light on the solubility limit of Tirz? It seems desirable to minimize injectable volume, but clearly there must be a limit as to how much mass can be dissolved per mL. Since of the big three GLP-1s, the Tirzepatide doses are the highest mass-wise, I'm primarily interested in it?

A: We have dissolved as much as 50 mg of Tirzepatide in 2 mL of grade I water. That's the most I've tried if I recall correctly.

Q: Any idea why someone would get an injection site reaction (red itchy welp) using pharmaceutical MJ and nothing when using tirz vials? What ingredient would prescription have that the other wouldn't?

A: It might be any of the helper compounds, or just the concentration of something.

Q: What is the solubility limit of Tirzepatide? It seems desirable to minimize injectable volume, but clearly there must be a limit as to how much mass can be dissolved per mL?

A: We have dissolved as much as 60 mg of Tirzepatide in 2 mL of grade 1 water.

Q: How can we test for Tirzepatide degradation?

A: We can just submit it to forced degradation and test again.

Peptide Manufacturing – China

Manufacturers

Q: How many Retatrutide manufacturers are there?

A: I'm convinced that there are no more than 2 manufacturers of Retatrutide raws. I've actually dug quite deep into that one.

It's not like the information we have is always true and deception for protection of one's business is a daily bread in China. It's not like anybody who poses as a direct manufacturer will admit to being just a reseller. It takes a lot to peel the onion. But really, there's no way to 100% know. Undercutting somebody who has already made an investment into the process and can already manufacture at such a scale is not really economical most of the time. They made a batch of 100g if I recall correctly. I actually had a contact for the first Chinese generic

manufacturer of Tirzepatide 1.5 years ago. I have not actually looked into Tirzepatide manufacturers as well, but I'd guess extremely few as well.

Chinese Batches

Q: What does a Chinese vendor consider a batch? Is it once a peptide is started, all production until the next product? Or is it after production has stopped, a weighted amount is mixed with fillers and diluted with water, then lyophilized? Or are these separate "batches" at each step?

A: Each vendor tends to classify it differently.

Trusting Chinese Vendors

Q: How do we know which Chinese vendors to trust? How can I know that I am buying a product from the same batch from which a vendor provides a test report?

A: Don't trust, verify, like the Bitcoin motto. There's nothing other than blind testing to sort that out without trust.

Suppliers

Q: Do you have a list of suppliers that you have routinely had high quality results? I'm sure there are more than what are talked about here. Do you have a List of suppliers to stay away from because the quality is always bad?

A: Being a lab working with scheduled substances I tread a thin line to keep being able to provide my services. Also, I won't risk my reputation by recommending anyone nor will I risk legal repercussions from doing so. Client confidentiality and objectivity are important parts of my work.

Excuses

Q: This seller is claiming they decanted their Semaglutide and sent it to you guys instead of sending the full vial, and that's why the results have come back under dosed. Is this true?

A: I would rather not address this due to client confidentiality, but you see how it sounds....

Q: Can you address in theory what "decanting" means and how that could change the measured mass?

A: I have literally no idea what it's supposed to mean, apologies.

Q: Is it possible for Oxandrolone to test (reagent with and without UV light) positive for Methandrostenolone?

A: Yes, reagent tests are notoriously unreliable.

Q: Egrifta SV version is more concentrated and Egrifta is not concentrated. I am not sure if there is a chemical difference between the two products.

A: Well, concentration is not a chemical difference. Just a matter of how much is there.

Q: What are your thoughts on UVC sterilization for pen cartridges? Do you think they are necessary and are they actually making a difference in the safety of using pens?

A: This is not part of my expertise. Yes, UVC can make a difference, possibly for the worse, depending on the materials. Not too many materials are rated for UVC exposure. Thus, you could be degrading / leaking stuff by shining UVC on the plastics, etc. UVC degrades a lot of stuff, peptides included. It does not degrade glass. Rubber definitely dislikes extensive UVC, and **extensive** exposure could degrade the stopper to the point that it could leak into the vials contents once being filled.

Q: Do you think rubber degradation could occur from a 30- to 90-minute cycle of UVC?

A: No idea.

Q: A vial marketed as 10 mg, tested at 12.33 mg. Do I need to adjust my reconstitution/dosage for the tested amount?

A: Yes!

Q: I'm the person who donated the QSC TA-1 vial that had no TA-1 detected. I was told that you looked at it and could not identify what was in the vial, as it's not consistent with any peptides that you usually see. Is there any way for me to find out what is actually in the vial? I injected some in my research subject before testing, so now am wondering what it was I injected

A: None of these shown [on the right]. As far as I can tell, determining the ID of something completely unknown is an extremely time-intensive and costly task. I can put it on LCMS, but given I don't know what to look for, I think it would lead to no gain.

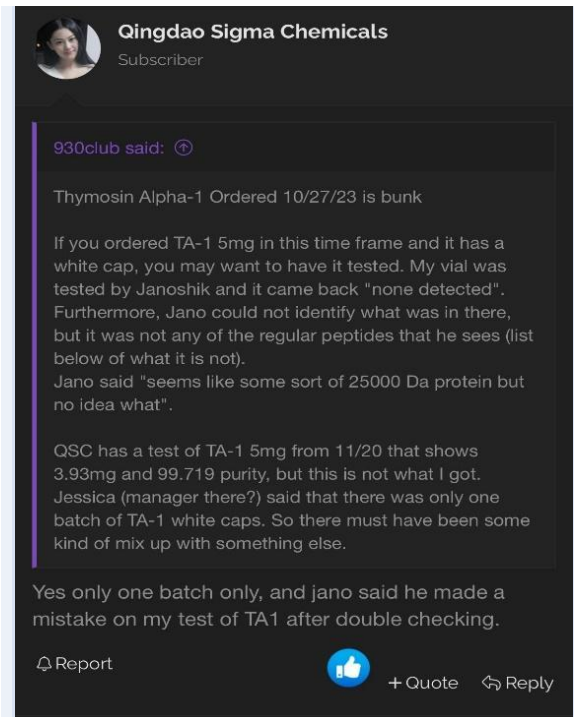
Name
Melanotan 2
CJC-1295 (mod GRF 1-29)
TB-500 (TB4)
BPC-157
GHRP-2
GHRP-6
IGF-1 LR3
HCG IMMUNO
HCG first subunit
Tirzepatide
Semaglutide
MOTS-C
Klespeptin
GHK-Cu
Thymosin Alpha-1
PT-141
AOD-9604
Hexarelin
Epithalon
KPV
DSIP
Ipamorelin
Sermorelin
Retatrutide
Selank
Semax
TB500 (889 Da)
Thymulin
Tesamorelin
SS-31
Somatotropin (176-191)

Q: I contacted another vendor about this, and they specifically said the CAS they have or use says Iodide, but they guarantee it will test Chloride. I wonder if this is a common thing. Is there a way to easily verify? Like easier than high tech, some basic chemical reaction we could check that iodide or chloride responds to very quickly?

A: I can guarantee it's not iodide (the raw powder we tested), the Hubei Vanz. If it were, it would add up to over 100%. Or do you mean XCE? To be honest, I believe we can see iodide on HPLC. If it's raw powder and the content of the target molecule is over, I think 55%, then we can judge it's not iodide.

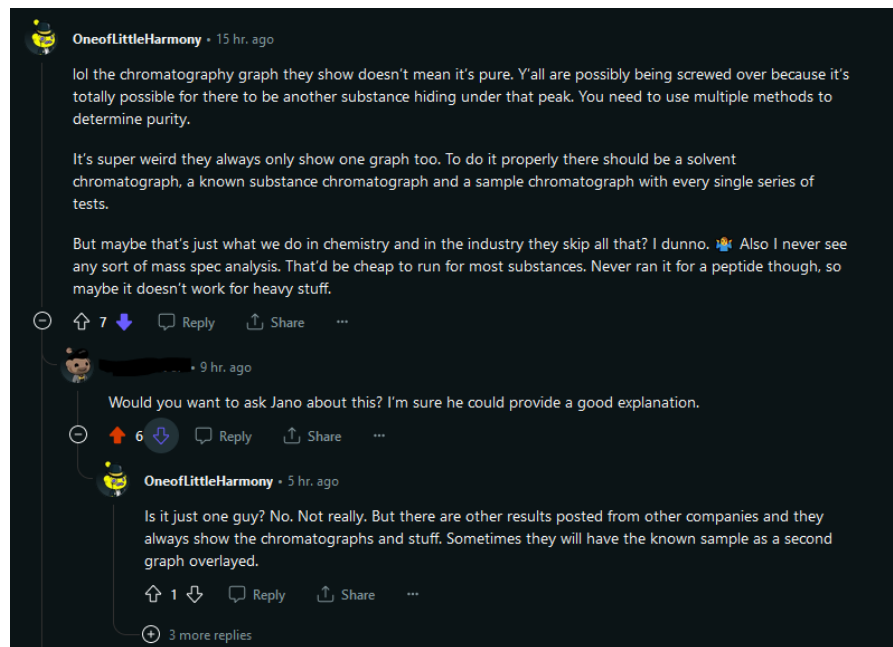
Q: Did you make a mistake on the TA-1 as Tracy states?

A: Yes. Tracy's TA-1 turned out to not be TA-1 (on his own internal test). Not the mistake on the test done for this community. It went like this: I tested TA-1 here, and it turned out to NOT be TA-1. Tracy contacted me, and said I tested that batch of TA-1 roughly the same time. I reviewed it and I amended the result, as that TA-1 has been misidentified, unfortunately, by my fault. So, the TA-1 QSC and GBH sent tested the same (as complete unknown), but on QSC's own test, misidentification occurred.



Q: Any comments on this?

A: Nothing stops the guy from paying me to export all that data for him. But just exporting and uploading the data for the sample is a massive pain. Is it a 2-3 minute process per export? Yes, it is. But we're now dealing with 500 samples a week. If we exported data for all samples, it'd be an entire working week for another member of the team. I would need to pay the new employee, so I would likely have to transfer that cost increase into cost of test increase. I wish to expand the business carefully. I have always preferred slower sustained growth of a company than explosive one - e.g. during Covid we had 0 business for months because international mail stopped.



Had I been employing 5 people back then; we'd have gone bankrupt in that period. So, I am very slow to hire help, and maybe it's wrong of me. But I really don't consider raw data export to be that important. It's really not the standard way to do things. I'd guess the guy is in academia, they synthesize random stuff and need to run MS on all that they make. But there really is no such need with peptides, IMO.

Q: Are there any instances from your knowledge on dyes being used to adulterate/cut GHK Cu? I have seen some variation from light blue to dark cobalt and presumed it was a concentration issue with the mannitol making it lighter, but now I'm wondering if it'd be advantageous to adulterate with blue dye?

A: Yes, I've seen that, unfortunately.

Q: Were you able to identify what kind of dye it was, or have a guess? Or able to share which vendor had that issue?

A: Apologies, I can't answer either of the questions. One, because we don't do much with unknown IDs and two because of client confidentiality.

Q: Could the filler affect the color?

A: I honestly don't think the filler ought to influence the color. The amount of copper / dyes does, but fillers being invisible to the naked eye once dissolved, shouldn't.

Q: Is there any type of standard test that a Dr's office would run that could potentially show Retatrutide in my system?

A: No, but your glucose etc. might be different than previous tests. And if you lost lots of mass, other things might differ too, e.g. urea related stuff, better cholesterol etc.

Q: Would it be possible to tell us the bottle weight of the Tirzepatide 1/14 test? Tell me if I'm not thinking correctly. But if I know the results of the sample. Then I can weigh my bottles. And if they match, I know they are likely the same results as the test?

A: Nope, not the good way to go about it.

Vendor Recommendations

Q: Can you recommend a good peptide vendor in [name a place]?

A: I cannot recommend anybody, both because of legal liability and also because I don't believe a neutral testing lab should be going around giving out recommendations.

Q: Can you list any peptide companies in the UK or Europe? I'm not asking for a good or bad recommendation, just names?

A: Off the top of my head, I only recall Deus Pharmaceuticals, if I recall correctly. This is not an endorsement or a recommendation, just cannot recall anybody else, really.

Compounding Pharmacies

Q: I'm always curious as to how compounding pharmacies get their GLP-1 peptides (or other popular peptides/chemicals for that matter). Do they buy raw materials straight from the chemical manufacturers in China/India/Mexico/wherever, or do they buy the lyophilized version and simply reconstitute it?

A: Both.

Q: Many people just take the compounding pharmacies' word for it but how do we know for sure their stuff is truly as advertised? It's not like these compounding pharmacies are showing people their COA(s).

A: You're right, we don't.

Q: A compounding pharmacy claims its formulation was tested with a third-party lab and found it remains potent for 180 days when stored in a refrigerator, 90 days when stored at room temperature and 45 days when stored at 40 degrees Celsius. Can you verify this?

A: I'd take anything said in defense in the court of law, especially if the court might be disinclined to run scientific experiments to confirm it, with a grain of salt. "The formulation" is so vague, it can mean literally anything.

Q: I was told by a vendor that "The solubility of Testosterone Cypionate is only 112mg/mL, and I don't know how others can produce 200mg/mL. Is that accurate?"

A: I've been in the steroid world for long enough to know that Testosterone Cypionate can hold at 200 mg/mL easily, only oil and benzyl alcohol.

Q: Do compounding pharmacies send their stuff for testing too?

A: Yes, and yea. I've seen some crazy stuff from compounding pharmacies. Also, some send in their stuff under their real LLC etc. Some try to badly hide their identity. Of course, if some hide their identity well - and that's easy working with me - I'd never know it's a compounding pharmacy.

Q: Some of the compounding pharmacies include B12, L-Carnitine, L-Glutathione, etc., in their GLP1 premixed vials. Is there a risk in reconstituting lyophilized vials with these aminos in addition to BAC? I am sure some BAC would be required to retard Bacterial growth, right?

A: Why? A single amino acid or vitamin is not going to make much difference.

Combining Peptides

Q: I see CJC/Ipa and BPC-157/TB-500 sold as a combination, so can other peptides be combined? I've had peptides which were all clear in their respective vials but turn cloudy when drawn into a single syringe and mixed together. Any idea why that is and is it impacting on quality?

A: Maybe their concentration combined ran over the solubility? I'm not aware of any evidence that combining multiple peptides can damage or degrade them in any way. But I'd advise

against combos unless necessary. Why risk complicating things for marginal gain? We've tested a couple blends and as far as I know, didn't notice any issues with them, but I dare to say that one more SQ (subcutaneous) pin is less risky than trying out various combos.

The peptides could not recombine into other molecules.

Q: I reconstituted a vial of CJC and lpa and both were clear. I went to combine the two and it became cloudy, not super cloudy, but a slight hint of cloudiness. What do I do?

A: Pull a bit more solvent into the syringe to see if that helps.

Lyophilization / Buffers

Fillers, Buffers

Q: Someone was showing me a few days ago of this particular vendor called CanLab based in Canada who has peptides "without mannitol", which made me think either: 1) they're selling raw stuff, or 2) they're using some kind of different filler, or 3) they have a completely different technique to preserve/powder the peptides? I guess my questions are: Which of the scenarios I put above is the most likely? Why would they fully advertise the "without mannitol" thing?

A: Mannitol serves pretty much only to help the lyophilization process. If their peptides are nice pucks in vials, they most likely do have mannitol in there, or use a different filler, such as sucrose. The amount of mannitol used in lyophilization hardly does anything at all. Why would a company do that? I was recently made aware that some people are hypersensitive to mannitol, but I had not encountered that before.

Q: Can vendors use different buffers?

A: Well, it's absolutely possible that different manufacturers use different buffers or no buffers at all.

Q: Can glycine be used as a filler? Is it considered an impurity?

A: I am aware of the glycine being used as a filler in QSC samples and we don't count it as an impurity.

Q: What's a rough estimate for the mass of powder in a typical peptide vial (with filler)?

A: 50-100 mg. If you have a singular batch, then the amount of filler is proportional to the amount of API. If you have the same batch and there is a significant difference in the amount of filler in one of the vials, it has been improperly filled. This is in regard to the total mass of the powder. About appearance, from my understanding, the density of lyophilizate might vary a little here and there, but nothing too significant? So, if I get 10 vials and one of them has half the 'puck height' I'd think it's half the API as well. You can have 50 mg mannitol and 10 mg peptide, but also 200 mg mannitol (or other filler) and 5 mg peptide.

Q: If someone is allergic to mannitol, what other lyophilized fillers can be used?

A: Sucrose. However, I believe that allergy to mannitol is exceedingly rare.

Q: Have you commonly seen de-caking agents or fillers used in a lot of powders you've tested? Or rather, is ~80% m/m common or low? We saw some similar values in some samples of cosmetic GHK-cu, too?

A: I have no way of identifying those as of now, unfortunately. But there are some peptides that suck air moisture insanely. I don't think it's the case with this compound. Fillers are best tested by FTIR, which we don't have as of now. Moisture analysis with the equipment we have requires 100 mg material, minimum.

Q: I thought the peps were just mannitol and raw peptide? Is there also a buffer included or is mannitol the buffer?

A: This is human growth hormone. The sodium thingies are the pH buffers.

GENOTROPIN 5 mg is dispensed in a two-chamber cartridge. The front chamber contains recombinant somatropin 5.8 mg, glycine 2.2 mg, mannitol 1.8 mg, sodium dihydrogen phosphate anhydrous 0.32 mg, and disodium phosphate anhydrous 0.31 mg; the rear chamber contains 0.3% m-Cresol (as a preservative) and mannitol 45 mg in 1.14 mL water for injection. The GENOTROPIN 5 mg two-chambered cartridge contains 5.8 mg of somatropin. The reconstituted concentration is 5 mg/mL. The cartridge contains overfill to allow for delivery of 1ml containing the stated amount of GENOTROPIN – 5 mg.

Q: Are those buffers enough to stabilize the pH if the bac water is approaching 10 pH on its own? Not just slightly out of whack?

A: The amount of buffer plays a role, also. The amount of buffer needed can be calculated. Ultimately, a very small buffer amount can stabilize a very strong acid/base.

Lyophilization

Q: Why are peptides often sold lyophilized? What is the advantage of lyophilization over raw?

A: Lyophilization makes peptides stable for transport and storage. "Raw" peptides are still lyophilized, it's just done after synthesis in trays, without any fillers, and skips the secondary drying process to reduce losses. True "raw" would be a liquid and would have a very limited shelf life even under ideal conditions. The lyophilized "raws" are packed in bags or drums before being sent to the fill & finish provider, who adds the Mannitol and any other buffers when reconstituting into a solution. Then they sterilize the solution by filtering it during dispensing in vials, and then they are lyophilized and sealed. Mannitol is naturally occurring in so many foods like fruits and vegetables that it would be nearly impossible for most people to avoid, and while there can be allergies to it, they are very rare.

Q: Is lyophilized vs liquid easier to dose?

A: You dose a liquid into vials and freeze-dry it. Dosing 1 mL of liquid into a vial = easy. Dosing 50 mg of powder into each vial = difficult.

Q: Have you had any experience with peptides that have not been lyophilized? We hear a lot about fly-by-night vendors here in the states that hand fill vials from raw powder. Would impurities show in your tests? Have you ever tested against this sort of product?

A: Yeah, it's pretty much a random dosage. We've at this point seen some that have been usually getting within 10% of stated dosage, though, which I consider impressive.

Q: Have you ever received a peptide sample in a vial that was lyophilized without any fillers? So, it'd just basically be a smattering of dried dust coating the vial? And can you share how that may have affected results? Not speaking of any particular vendors of course. For this particular version with no fillers - do they still look just like essentially a dusty vial with nothing really at the bottom?

A: It was lyophilized power in a vial, but it was not originally lyophilized in THAT particular vial. All peptide raw powders are lyophilized. But to be honest, I have had both cases - raw powder dosed by hand into a vial I've seen oft (especially recently), but also lyophilized in a vial (the vial) with no fillers. It looks like when you have "hard" water and leave it dry in a glass.

Q: I'm curious if you've observed a greater variance in the purported mass compared to the actual mass in vials that have been lyophilized without filler? My understanding is that the lack of fillers results in the potential for much higher losses during lyophilization thus making accurate filling far more problematic?

A: Yes.

Q: If we were to send you 2 vials of this "raw" supposedly lyophilized samples from the same "batch", would there be wild variance between the two? And you'd be able to tell if they were indeed lyophilized?

A: All peptides are, at one point or another, lyophilized. What we're meaning is lyophilized in the final product, which if its in a vial, is easy to identify because it would be a puck or lumps (badly lyophilized).

Q: If you received a 'bad lyophilizate' sample for testing, would you be inclined to decline it? Or would you proceed with the test and provide the results regardless of what they are?

A: We don't really care about that at all, to be honest.

Q: Could a 'bad lyophilizate' mean there's possibly nothing wrong with it, even from a possible contaminant standpoint? Like, could the product possibly have been finished in an unsterile/unclean environment?

A: Proper or improper lyophilization would not affect that. The test will tell us whether it's dosed properly with an acceptable purity. Even a nice puck with a vacuum could have been done by a lyophilizer in the sewers.

Q: My understanding is the original fluid is lyophilized in trays, then bagged as "raws" which may be done in an aseptic environment, but pretty much once the bag is opened it is no longer considered sterile? In the case of finished lyophilized vials the fill & finish operation reconstitutes, adds Mannitol, then filters and dispenses the fluid into vials which are then lyophilized and sealed. Others buy the "raws" in either bags or non-injection vials that they are

manually dispensing into injection vials claiming they are not "raw" but lyophilized. Would you agree with that understanding, and if not, could you clarify any errors?

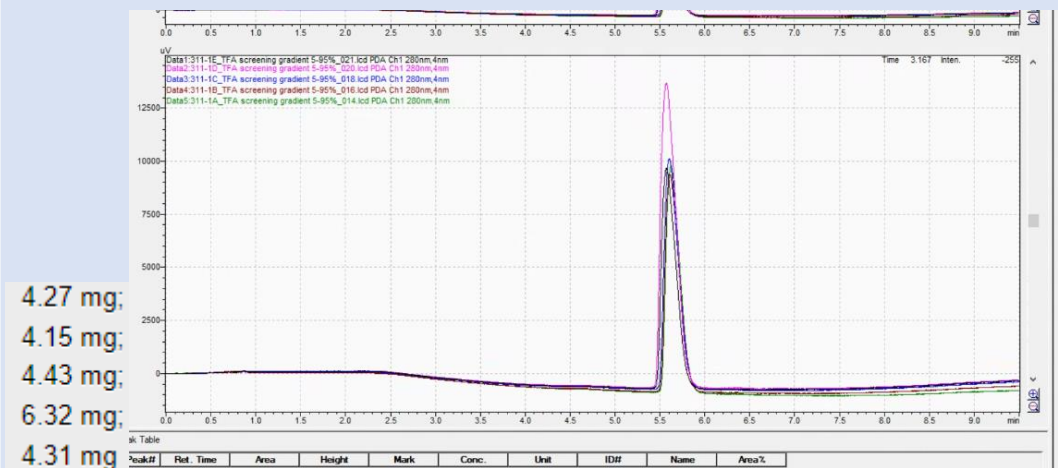
A: It happens, but it is very rare in my experience that others are buying and manually dispensing "raws". When the fluid is dispensed into vials during lyophilization, it is done through .22um filters, which re-sterilizes it.

Q: I have heard that when you take raw powder and lyophilize it, you lose around .2% of purity from the process (.2% being the amount from a quality facility). Does that sound right?

A: Yes, there is always some purity loss with lyophilization. But at this point, the machines are advanced enough for it to not realistically matter.

Variance & Pucks

Q: With properly made peptides, the variance should be around 2-3%. This is a single batch, Notice the outlier:



A: This is an example of not properly made stuff, single batch, but massive differences in dosage.

Q: I was hoping to clarify an earlier point. You stated, "not properly made stuff, single batch, but massive difference in dosage." Could this mean that testing from the same batch is not all that reliable, and that different vials, even from the same batch, could be very different in purity? From 4.15 to 6.32, using your chart there? It seems to be then that same batch testing is not a guarantee of same purity? Or are those numbers not a measure of purity?

A: The numbers are normally a measure of dosage, not purity. Purity is the amount of target peptide / total peptide in %. Dosage is the target peptide absolute amount.

Well, you can tell lyophilizates by the puck - the cake inside. If it doesn't have that, it raises an eyebrow. It will also have the vacuum inside.

The photo would be something that raises an eyebrow, but most likely it's nothing. It might be showing less than preferable care was given to the manufacture of the product. However, this doesn't necessarily mean anything is wrong with it. It is a lyophilizate, but a bad one.

Q: Do shrunken pucks indicate anything related to potency?

A: No, it doesn't mean anything. It's mostly an aesthetic issue - proper pharmaceutical manufacturer probably wouldn't let it pass, but ultimately, if most are perfect, it holds vacuum, etc., I wouldn't worry.



Q: Can any substance with a high enough freezing point be lyophilized? I would love to find Methylene blue in lyophilized form?

A: I don't think it's done because there is no benefit to lyophilization for that.

Reconstituting

Q: When I started to reconstitute a peptide vial, I noticed that there was not a vacuum in the vial. Does that mean it's bad, or is this harmless?

A: A vacuum seal is a sign of proper lyophilization and seal, and the absence of it is not a good sign. But there being no vacuum also does NOT mean your peptide is bad.

Q: What is the risk if you reconstitute a peptide immediately after taking it out of the freezer?

A: None really, in my opinion. Water has a thermal capacity much higher than glass and lyophilizate; so, I postulate that even if the glass and lyophilizate were really cool, it still wouldn't be enough to make the water freeze.

Q: Would using an acetic acid solution over BAC water be effective?

A: The vendors claim that it helps. I can see how it'd help through pH manipulation, but I'm not a fan of injecting that.

Q: Should we swirl vials before using anything? I was not sure if some of the peptide could settle out from the mannitol (or other filler/buffer). Any takes on that?

A: That definitely shouldn't be happening - pretty much all the peptides should be readily soluble in water and stay in the solution. But a mild shake won't hurt anything. And frankly, neither is shaking it like it owes you money, it's just a pain waiting for the bubbles to be gone if there are too many.

Q: I wonder if it would hurt the peptides to put a reconstituted peptide into a pen cartridge and then place the cartridge into a UVC sterilizer and give it another go at sterilization. What do you all think? Does UVC light sterilization degrade the peptides? It's in there like 8 to 16 minutes, so not exposed to UVC light for a very long period of time?

A: Don't do that. UV definitely degrades peptides – rapidly and notably.

Q: Since reconstituted peptides are in solution, molecular distribution should remain more or less even without any settling out. They also don't degrade rapidly if stored in proper conditions. Somehow, though, my research subject always experiences significantly less restriction on the last dose from a multi-dose vial, whether it's been used 2 or 6+ weeks. After pinning from a fresh vial restriction is strong again. Is there some factor I'm missing here other than random chance & psychology? I typically reconstitute with bac water the day before a vial's first use and keep it refrigerated?

A: You are correct, solutions are homogenous and ought to remain that way.

Q: Do you know how long a peptide reconstituted with this would be viable/last? Would you consider it for single use only?

A: Definitely not single use only.

Q: Is it likely to be an issue if you mix peptides in a vial that is used over weeks? Like one vial with CJC-1pamorelin-BPC157-TB-500? Also interested in this. Specifically, I'm contemplating pre-mixing a Tirzepatide/Retatrutide blend at my desired ratio?

A: I have tested all the peptides you mentioned in mixes and I haven't seen anything that would suggest an issue. The sterility goes, but it's not like the peptides are going to interact or anything.

Q: In most cases do you think reconstituting a peptide in a solution composed of vitamins, aminos, etc. would be ok?

A: Yeah, indeed.

Q: I've heard rumors that there's something about sodium chloride that isn't good for the peptides - any info or thoughts on that?

A: I don't find such rumors very plausible. 0.9% NaCl is rather tame, and inside the body there's a whole bunch more ionic solutions, etc. But that's just my guess.

Q: Since ~95% of the powder is typically filler, after reconstituting, how do you know if the actual peptides are evenly distributed in the liquid?

A: If it does not gel, it's a solution. Solutions are homogeneous.

Q: I used raw AOD-9604 and reconstituted per vendor instructions. The first vial, reconstituted with bac water, gelled. The second vial, reconstituted as directed by the vendor, with .5mL acetic acid in the stirring state, followed by 2.5mL bac water once dissolved. First: is gelling due to the TFA? Wouldn't it still be present even with 5% acetic acid? Second, can the vials be tested once they're already reconstituted? Wouldn't acetic acid break the peptide bond similarly to the stomach with a peptide taken orally?

A: First: Yes, acetic acid wouldn't make TFA disappear. I don't think the gelling is caused by the TFA. I think gelling is caused by the intrinsic properties of AOD-9604 peptide and acetic acid helps prevent that by influencing the charges that the peptide has, so it doesn't interlink = form

a gel. Very simplified: weakly acidic, neutral or basic = propensity to gel. Acetic acid doesn't harm AOD-9604, but I don't think it's advisable to inject.

Stomach acid actually doesn't digest peptides / proteins; it's the enzymes present. So, there is no parallel implying to the peptide. It's interesting: the digestive enzymes, which digest proteins, work only in acidic pH. PH modified property of proteins (enzymes are proteins) vastly weakly acidic, neutral or basic = no digestion.

Q: Regarding AOD-9604: I was told that using sterile water, (as opposed to BAC) to reconstitute would help with the cloudy issues. Then, because sterile water is supposedly only "good" for such a limited time, that you could draw up your AOD-9604 into syringes and freeze them and then thaw as needed?

A: Personally, I wouldn't bother with freezing and thawing and just use sterile water without any further worries.

Gelling or Cloudy Vials

Q: Any insight into why AOD-9604 is gelling when reconstituted?

A: I wonder by what mechanism would the AOD-9604 and TFA bind. I have been under the impression it's a question of pH. It certainly is unique to AOD-9604 and I don't know enough to claim it is or is not the cloudiness causing agent, but I honestly don't think so. So, dropping pH actually re-solubilizes AOD-9604 (and well, acetic acid also makes it go back into solution) AOD-9604 / GH frag tested terribly for years at this point. I think it has been cloudy for years. The TFA being the cause of gelling is a communication error between MZ and [Aminos Research], it appears.

Q: With the AOD-9604 test, could you slightly warm the bac water to say 100 F just sitting in sun before reconstituting it? Could it help it dissolve instead of gel?

A: AOD-9604 and HGH Frag have notorious solubility issues. We only use room temperature (20-21°C/68-70°F) water. However, we did also try DMSO (Dimethyl sulfoxide). For peptides, if DMSO can't dissolve it, nothing can. Please note, I in no way claim that using DMSO will make it suitable for subcutaneous or any other injection. The standard protocol for lab testing is to use DMSO.

Q: With this not-dissolving issue, is it possible that purity and quantity results would also be affected/come back with different numbers across tests from the same batch depending on how it dissolved?

A: Yes, both would be affected.

Q: I tried mixing in the CA black cap AOD-9604 with a 0.6% acetic acid solution. It formed a viscous goo at room temperature.

A: Yeah, we're seeing that a lot. We've been seeing particulate HGH fragments before, not gelling. The gelling has only been in recent months. It normally tests terribly, dosage-wise. My wild guess is that the gelling is due to polymerization.

Q: Would using bacteriostatic sodium chloride over regular bacteriostatic water be effective in getting AOD-9604 to dissolve better?

A: I don't know how NaCl would aid dissolution, but if it's 0.2% like over here, it might be worth trying. Generally, isotonic saline is suitable for injection, but I don't know which process or chemical reaction it'd aid dissolution through.

Q: Will AOD-9604 degrade if left at room temperature? Peter from CA told me to leave it out of the fridge to prevent it from gelling. It's 2mg vial so about 7 doses?

A: Well, I know that room temp doesn't prevent it from gelling.

Q: A vendor put this on their site. What is your thought?

A: Yeah, that's entirely possible.

Due to the properties of this peptide, it does not dissolve well after reconstitution. The solution may become thick, gel-like, and cloudy; this is a normal property of real AOD-9604.

Q: What does it mean when you mix a vial and 3/4 of it is clean and 1/4 turns to a slightly cloudy gel?

A: That means that you have a heterogeneous solution. So, one part of it has a different concentration of active compound than the other, in this case: e.g. your Monday pin might have 0 active compound, and a Friday pin have 5 times the amount. I wouldn't use any heterogeneous solution. Give it a hard shake and if it persists, I'd strongly advise against using it.

Q: Are cloudy reconstituted products 100% to avoid? What's the problem with using cloudy or gelled peptides?

A: Yes, avoid. It generally implies risk of inhomogeneous solution or aggregate formation, and as per guidelines with any peptide / protein medicine, is not to be used. I am not aware of any case when such a product is to be used, as per official standards.

Q: Has there been an identifier why AOD-9604 and Frag is not good to use if it clouds or gels?

A: General advice with any therapeutic peptide/protein is to discard if cloudy/gelled etc. But also, generally, inhomogeneous solutions are something very worrying. Thankfully, most peptides have a very wide therapeutic index, so it's not so much of an issue but still.

Q: Have you heard of Semaglutide becoming cloudy or lumpy when reconstructing? Do we know what causes it?

A: That's definitely both worrying and suspicious. I have never seen a peptide other than AOD-9604 gel or a wrong Semaglutide salt, and I have seen 1000s of peptides. But I've seen Semaglutide /Tirzepatide /Retatrutide switched for the much cheaper AOD-9604, so that I would worry about that.

Q: Have you tested much Frag 176-191 lately? Any similarities in gel? (Jan 2024?)?

A: Yes, 9/10 tests are testing poorly.

Q: I have a peptide that was cloudy after initial reconstitution, but after sitting for a day it clears up with white sediment at the bottom. Is it safe to use?

A: Insoluble residue is always bad news. I wouldn't use anything like that.

Q: What about NAD+ cloudy or gelling?

A: Technically NAD+ is not a peptide and the issue there is, as far as I know, it is not soluble at 500 mg / 2 mL without heating, thus simply crashing out of the solution. It is still inhomogeneous though. If heating it makes it go away permanently, then it's not supersaturated (like NAD+) nor "gelled" (aggregated, etc.). It's slightly different from NAD+ (where simply using a bigger vial to get more solvent in works to prevent any issues). Frag (an aggregation of peptide - not good) etc. These are small molecules and if heating makes it go away and it stays away, it is simply cooled down during transport/storage so that it crashes out of solution.

Q: I had some Semaglutide turn into gel inside the syringe because I pulled it after pulling some units of L-Carnitine and b12 from a different vial - may I ask why this happened?

A: I've only seen gelling with AOD-9604.

Q: At what point is a peptide "bad", where you would not use it and just toss it? Is cloudy ok? In a vial where gelling is present on the walls of the glass, would the remaining liquid be ok for injection?

A: The general guideline (and the one I'd advise following) would be to steer away from products that gel due to their inhomogeneous nature.

Q: Is a cloudy / gelled peptide safe to use if more water makes it "un- gel"??

A: If you can redissolve it by using more solvent, that'd be great. We use 2 mL to dissolve peptides by standard and you usually can't fit much more into the vials, so we're at the limit already.

BAC Water & Sterile Water

Q: Is Bac water required for reconstituting peptides?

A: I've never used anything but sterile saline for injection. BAC water is not used in Europe whatsoever, at least not in my parts.

Q: Will high pH levels in BAC water ruin the peptide?

A: I don't think the BAC water can have pH high enough to denature anything. Otherwise, you'd suffer dearly due to local effects upon injecting it.

Peptides ought to contain buffers to stabilize them at proper pH. To clarify, the vial with the peptide should also contain substances (other than the peptide) that ensure, that regardless of the pH of the liquid you use to dissolve it, the pH remains optimal. Per Wikipedia about buffer solutions, "Its pH changes very little when a small amount of strong acid or base is added to it."

Buffer solutions are used as a means of keeping pH at a nearly constant value in a wide variety of chemical applications.”

Q: So high pH levels in BAC water won't ruin the peptide?

A: I don't think the BAC water can have pH high enough to denature anything.

Q: Should I use Saline or Bacteriostatic water for reconstituting my peptides?

A: I strongly believe regular saline for injection is the best choice. Bacteriostatic water is basically unheard of in the EU. Saline with 0.9 NaCl. Bacteriostatic water slows down bacteria multiplication and bacteria can digest and live off proteins/peptides.

Q: Will I ruin my precious peptides by reconstituting with sterile water vs BAC water? Or would the shelf life between the two be very different?

A: Mostly if you don't suffer local [injection site] discomfort, it doesn't matter which kind of sterile water you use.

Q: Do you recommend using saline water for multi-use vials? How many days/weeks would you use the vial if you are not reconstituting with BAC?

A: I think my record has been something like a month and a half back 10 years ago with Melanotan II, maybe two months.

Q: Pretty much for forever I always thought that using sterile water especially on a peptide renders it mostly useless in a day or so is this true? Because we're having issues trying to reconstitute ARA 290 it ends up looking like winstrol. When the powder just falls out of suspension, and we're being told to use sterile water, but I always thought sterile water you have to use a peptide within 24 hours and then it's basically trash. I also heard sterile water does not suppress microbial growth, and its shelf-life is only 24 hours after opening. Any peptide reconstituted with sterile water also becomes unsuitable for use after 24 hours, even if refrigerated?

A: Untrue, you can use sterile water. There might be a slight nuance to that, as in the sterile water container shouldn't be used after > 24 hrs once you break the seal.

Q: Do I really need to toss BAC water that is 28 days old?

A: Again, the best practice is to use single-use liquids for injection. But is it likely you'll run into issues? Not at all. Given what I've seen around during all the years, infections from subcutaneous injections are... extremely rare even with the worst of practices. The general practice is to open the bottle, use it and throw it away right afterward. When you buy 50mL sterile water for injection by the millions of packages, it gets cheap enough that it is the cheapest to just throw it out.

Frankly, subcutaneous use is not that sensitive. So, I wouldn't worry about it from an infection perspective. Regarding the difference in peptide life, I don't suspect major differences either.

Q: Would tap water ruin a peptide vial? Not that I'd ever use tap water for that?

A: No, it wouldn't. Frankly, in my opinion, the peptide vials ought to contain buffers to ensure that no matter the solvent you use, the conditions will remain the same pH wise. The fact is, you can

probably inject tap water subcutaneously for decades and not run into any major issues. I've worked with my share of addicts and bodybuilders.

Q: What's your opinion on peptides being degraded by bad BAC water? Is this also overblown?

A: In my opinion, yes.

Q: I was given a case of this bacteriostatic 0.9 NS, pH of 5. Would you see any reason this wouldn't work for reconstituting? Would the sodium cause degradation?

A: Imo: No, sodium won't cause any issues.

Q: I've seen some versions of Bac Water from Pfizer that is 0.9% sodium chloride. I know the addition of sodium can affect the overall ionic strength of the solution, and from what I've read this might cause some more sensitive peptides to break down quicker by disrupting the electrostatic interactions that hold the peptides together. Is that possible or just crazy theoretical stuff that would likely never happen unless the concentration was much higher?

A: 0.9% NaCl? I honestly don't think so. I'd be really surprised if that happened.

Q: Let's say we wanted to prove conclusively that BAC is good past 28 days. Is there a test to show the percentage and effectiveness of benzyl alcohol? Could you test the BAC once a month for a couple of months?

A: How would you classify the effectiveness of BAC? Content is no problem but consider multiple tests' costs.

Storage & Degradation

Storage, Long & Short Term

Q: What do you recommend for peptide long time storage?

A: Prior to reconstitution, room temp for storage in a range of months, up to a year is OK. Fridge - freezer is OK for years range, I'd dare to claim. Thawing doesn't break peptide bonds. It can affect some weaker bonds, but definitely not peptide bonds. Generally, the rule of thumb says freezing and thawing a peptide will, most likely, not harm it. But unless necessary, there's no reason to risk it.

Q: Would you call long-term freezer storage of peptides solid, settled science or do you think it is worthy of investigation?

A: I would call it solid settled science. I cooperate with institutions that store peptides for decades in freezers. I have stored many standards in fridge, not freezer, for years, without anything notable.

Q: Can peptides be frozen?

A: Reconstituted ... well, not advised, but it's not like long term storage of peptide solutions at labs aren't frozen and thawed often. In short, some proteins have big issues with thawing and

refreezing. However, smaller molecules such as peptides, not so much. It is not recommended, but most likely it's okay.

Lyophilization doesn't matter. Often it is not too significant - and it's mostly affecting larger proteins, rather than peptides.

Q: Is it possible for peptides to degrade in “too cold” of temperature? Like a freezer that's -30 C?

A: No such risk.

Q: Should I move the powder peptides I don't plan on using in the next few months into the deep freezer?

A: If you have a deep freezer around then sure, why not. If not, a regular freezer will work plenty.

Q: So, considering HGH is a type of peptide; Would you say the same lyophilize storage guidelines you have shared in the past apply?

A: Yes. (Reference: <https://thinksteroids.com/community/threads/storage-conditions-and-dimer.134418293/>).

Q: With generic GH, has the science changed at all or would long term storage (5+ years) in a freezer be preferable to refrigeration?

A: Generally, for long term storage of peptides and proteins, freezer is the general consensus in the community. Freezer or deep freezer is the standard for that.

Storage, Name Brand vs Research Peptides

Q: Any idea what's in the MJ pens that allow them to last 2 years? Compared to the standard 28 days compound pharmacies and researchers say is the max when using BAC?

A: I assume it's solely the fact they are made in a sterile environment and tested to last that much. Pens are built in such a manner they can preserve sterility easily too.

Q: Will research peptides last as long as the name brand Tirzepatide?

A: A vial of Tirzepatide from Eli Lilly and one from China could use different fillers and preservatives, which will ultimately affect how fast it will degrade.

Storage, Peptides, Reconstituted

Q: I reconstituted a vial of a peptide, and I can't use it all in one 'course'. Can I save the reconstituted peptides for 4-6 months?

A: A couple months would be stretching it from a microbiological perspective. I personally wouldn't feel good using it half a year later.

Q: Once Tirzepatide is reconstituted, how long will that solution last/be stable without being refrigerated?

A: Nobody knows exactly but most likely longer than you'd need it to, so no worries. Another user posted about being at 90% after 3 months.

If you have a reasonable room temperature of 25°C (77°F) or less, I don't see leaving them out overnight hurting the peptide.

Q: Regarding keeping re-constituted peptides at room temperature (< 26 C): Tirzepatide and Insulin have been published to be good for 21 - 30 days. However, most people in the Peppers world keep their reconstituted peptides in the fridge. Have there been any tests to see how long reconstituted non-GLPs fare at room temperature? I want to keep some reconstituted pens at my bedside for early morning shots, wondering if I could do it without an ice pack?

A: Most peptides are rather stable, so I wouldn't worry too much.

Q: Are reconstituted peptides better in the fridge or room temperature?

A: I would do the fridge and say they can be good for months.

Still, lower dosed vials = shorter necessary storage = less risk. Nobody sane (meaning nobody sane in FDA, or equivalent organization) would approve 30 / 60 mg Tirzepatide vials such as what I'm seeing. Because if someone accidentally single doses it (it happens a lot more than you'd expect) it's trouble. That's why for all medicines such as that the change is to opt out for pens, which can be kept sterile pretty much indefinitely, even after using, or single use dose packages.

Peptides Fragility

Q: In regard to you violently shaking Tirzepatide vial, seemingly disproving the fragility; are there any peptides you don't recommend doing this with? That actually are fragile? Forgive me if this has been asked before?

A: Not aware of any. There certainly exist some peptides that are very sensitive to mechanical stuff, but as far as I know, it's not anything commonly encountered.

Q: Are peptides fragile?

A: Unless the mechanical insult is strong enough to induce cavitation, I'd deem it is exceedingly rare for a peptide to be sensitive to mechanical stress in solution.

Here is a video I made about peptide shaking:

<https://youtube.com/shorts/5oeA06Dmek8?si=1wnQocrIEdd1zbTz>

You can see the results overlaid over each other (only with high zoom) here:

<https://imgur.com/a/MIWqXDF> .

Degradation, Puck Effect

Q: Would a pep vial with a shattered puck have a shorter shelf life than a puck that is completely intact?

A: If all things are equal, there should be no effect.

Degradation from heat

Q: Have you by chance done any testing on lyophilized vials that have not been reconstituted and the effects of heat on those? Just curious with some of these long shipping times if the heat from mail carriers damages the peptide at all?

A: The test has only been performed on HGH, which was posted somewhere on Meso (thinksteroids.com). Normal temperatures (50°C/122°F) don't seem to do much to lyophilizates. For some sitting in an Arizona mailbox in mid-summer, I can see temperatures getting way over 50°C/122°F.

Degradation - long-term storage

Q: Has degradation testing been done for long-term storage of lyophilized peptides?

A: Generally, if stored at room temp in the dark, with a proper seal, any lyophilized peptide is barely changed in a year. Unless you live in Arizona and keep your windows open. A deep freezer won't hurt but is not necessary for the durations most people store their stuff for.

Q: Are peptides good after months or years of storage?

A: I wouldn't worry about anything under a year at room temperature and under a couple years in the freezer.

Freezing and Thawing Reconstituted Peptides

Q: One reads of labs preparing solutions in mass, and then separating them into aliquots and freezing them for future use. What is your view of preparing single doses of peptides in vial or syringe and thawing them for individual use?

A: I don't think a single freeze thaw cycle will prove to be harmful to most peptides, but that's only my hypothesis. If people test it out and the peptide keeps working as expected, well, no problem!

Degradation myths

Q: What are some common degradation myths?

- A:** Sigma has some short write up on common degradation pathways:
<https://www.sigmaaldrich.com/CZ/en/technical-documents/technical-article/research-and-disease-areas/cell-and-developmental-biology-research/peptide-stability>

Another worry is that degraded peptides can cause antibodies formation, but I find that moot, as native peptides can do that as well, as they are not bioidentical to start with. The likelihood of something unexpected happening - e.g. lower energy level peptide binding to some different receptor / stronger affinity etc. is very low. Honestly, this is just my speculation and belief from my limited knowledge of peptide chemistry, receptors and thermodynamics. Basically, the peptides work because they bind to such and such receptors, which means they have a very particular shape et cetera. Them breaking down to lower energy levels or having some stuff oxidized etc., can, at worst, cause them to bind to the target receptor less.

Degradation from single freeze - thaw cycle

- Q:** Has degradation of a reconstituted peptide in a single freeze - thaw cycle been tested?
- A:** No idea, but most likely it won't harm anything noticeably.

Degradation from Light

- Q:** So, we know that ultraviolet light degrades peptides including the GLP-1 group. But what about the usual visible light? Like say... light from indoor incandescent lamps?
- A:** Yes, but much, much, much slower.

Degradation based on amino acids present

- Q:** In solution, will some amount of the peptide degrade depending on the amino acids present in the sequence?
- A:** Yes, varying composition will degrade in varying manners. But it's more difficult than that, e.g. if a sensitive amino acid is not exposed within the peptide/protein structure, then it's not much of a worry.

Degradation – MOTS-C, TA1, CJC/IPA

Q:	Does reconstituted MOTS-C degrade in the first few hours? I think "Can Labs" produced this?	
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A:	I am not aware of any peptide that degrades within a reasonable timeline.	<table> <tr> <th>Peptide</th><th>Name</th><th>Area %</th></tr> <tr><td>Thymosin-a1 - Time 0</td><td>Thymosin@1</td><td>100</td></tr> <tr><td>Thymosin-a1 - Time 48h</td><td>Thymosin@1</td><td>98.79</td></tr> <tr><td>Thymosin-a1 - Time 1 week</td><td>Thymosin@1</td><td>98.52</td></tr> <tr><td>Thymosin-a1 - Time 2 week</td><td>Thymosin@1</td><td>97.98</td></tr> <tr><td>Thymosin-a1 - Time 3 week</td><td>Thymosin@1</td><td>97.96</td></tr> <tr><td>MOTS-c - Time 0</td><td>MOTS-c</td><td>99.12</td></tr> <tr><td>MOTS-c - Time 48h</td><td>MOTS-c</td><td>99.02</td></tr> <tr><td>MOTS-c - Time 1 week</td><td>MOTS-c</td><td>98.99</td></tr> <tr><td>MOTS-c - Time 2 week</td><td>MOTS-c</td><td>98.97</td></tr> <tr><td>MOTS-c - Time 3 week</td><td>MOTS-c</td><td>98.94</td></tr> <tr><td>CJC-1295 + IPA - Time 0</td><td>IPA</td><td>95.54</td></tr> <tr><td></td><td>CJC-1295</td><td>4.46</td></tr> <tr><td>CJC-1295 + IPA - Time 48h</td><td>IPA</td><td>95.24</td></tr> <tr><td></td><td>CJC-1295</td><td>4.75</td></tr> <tr><td>CJC-1295 + IPA - Time 1 week</td><td>IPA</td><td>94.93</td></tr> <tr><td></td><td>CJC-1295</td><td>5.07</td></tr> <tr><td>CJC-1295 + IPA - Time 2 week</td><td>IPA</td><td>95.14</td></tr> <tr><td></td><td>CJC-1295</td><td>4.86</td></tr> <tr><td>CJC-1295 + IPA - Time 3 week</td><td>IPA</td><td>95.21</td></tr> <tr><td></td><td>CJC-1295</td><td>4.79</td></tr> </table>	Peptide	Name	Area %	Thymosin-a1 - Time 0	Thymosin@1	100	Thymosin-a1 - Time 48h	Thymosin@1	98.79	Thymosin-a1 - Time 1 week	Thymosin@1	98.52	Thymosin-a1 - Time 2 week	Thymosin@1	97.98	Thymosin-a1 - Time 3 week	Thymosin@1	97.96	MOTS-c - Time 0	MOTS-c	99.12	MOTS-c - Time 48h	MOTS-c	99.02	MOTS-c - Time 1 week	MOTS-c	98.99	MOTS-c - Time 2 week	MOTS-c	98.97	MOTS-c - Time 3 week	MOTS-c	98.94	CJC-1295 + IPA - Time 0	IPA	95.54		CJC-1295	4.46	CJC-1295 + IPA - Time 48h	IPA	95.24		CJC-1295	4.75	CJC-1295 + IPA - Time 1 week	IPA	94.93		CJC-1295	5.07	CJC-1295 + IPA - Time 2 week	IPA	95.14		CJC-1295	4.86	CJC-1295 + IPA - Time 3 week	IPA	95.21		CJC-1295	4.79
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Miscellaneous Questions/Additional Info/Sample Testing

Peptide Test Components

Q: What do your peptide tests typically include?

A: With peptides, the compound, its amount and peptide purity are listed, nothing else, as nothing else is determined. I think the test reports and the details page on my site are pretty straightforward.

Pictures & Raws

Q: Do you include photos of the samples tested?

A: Yes, we offer this as an option.

Q: Can you include pictures as a standard, along with a notation when raws were received for analysis?

A: Among the hundreds of clients, a great minority would find that helpful, while adding a lot of workload to us. You can't just snap a picture. It has to be on a clean table, clear background, well lit, otherwise it looks less professional than no picture. It's not something I'm seeing us doing in the foreseeable future. We've considered it, but really, at 1000 samples a month, it'd be a bottleneck in the process, same with more elaborate comments on lyophilization state.

We take pictures of all samples. But they are lower quality (just snap a quick one). If requested, we actually take care taking the pics. With the number of samples we deal with, we have to streamline stuff as much as humanly possible.

New compounds chemical sequence?

Q: How do you test for new compounds? Do you need the chemical sequence?

A: You don't need full sequencing. If it's made and sold as 'generics' then there's most likely plenty of literature around to be able to confirm it being/not being the target.

Melting Point Testing

Q: Do you use melting point testing?

A: Melting points are not good for any of my purposes. You need a known compound or known compound list for it to identify anything and it must be pure. If it's not pure, you pray there is a singular contaminant that is known or from a known list and it takes a while. Whereas if you have a semi-volatile or volatile organic substance, ultrafast GCMS identify complete unknowns in 2 minutes. Also, you can't really test the melting point of peptides. We're talking 20k minimum equipment vs a 50 USD setup, so that has to be taken into account as well. Melting point is great when you are verifying purity of a known compound, that's supposed to be pure, and you get pure/impure result. It's great for that - awesome cost/benefit ratio.

Bacteria Testing

Q: Is there a way to visually see if there's bacteria/bad things growing in either BAC water or reconstituted things? Or an at-home test we can do ourselves?

A: The number of false positives is high enough as it is in proper sterile labs. I strongly advise against it for purposes other than fun experiments. The nasty stuff might not grow at all at a countertop temperature. And other stuff growing is going to be contamination, most likely high sugar stuff is for yeasts mostly, which are ever present.

Raw peptide impact on efficacy

Q: Despite having the same purity and vial content, could the raw peptide used have an impact on efficacy?

A: Yes, but that is exceedingly rare. Sometimes, just sometimes, there are things that HPLC is not too good at figuring out. But properly run and set up, the HPLC method is the golden standard in the industry for a reason. HPLC tests for a lot of variables at once, so the likelihood of such things happening... is low enough.

Testing MIC, aminos, vitamins

Q: Regarding formulations like MIC and those combining various amino acids such as carnitine, B vitamins, glycine, glutamine, L-citrulline, and more, do you also test them to determine purity and levels?

A: Purity cannot be established for finished products (only ID and amount). For peptides, purity can be established because all peptides have a common property that you can measure. But if

you have a compound different from peptides, e.g. in finished product, you would have to know what peaks are related to the API and which are related to carrier/filler/excipients (inactive substance) etc.

Testing complicated blends is both a pain and expensive. But we should be able to do it in house really, really soon.

Testing pH

Q: Is it possible to test the pH when running the standard quantity/purity analysis?

A: You can measure pH by simply dissolving the sample and sticking two electrodes inside, which pH meters are used for. You can use pH testing strips. They are pretty good to give you an idea and cost very little. We offer this service as well.

Raw Samples and Finished Samples

Q: How do you identify raw peptide samples?

A: If we receive a crimped vial with a peptide, we test it as a finished product. We only test it as a raw powder if we are notified to treat it as such, which is really on relevant for manufacturers. It's more work, useless, and often confusing for end user clients. The raw test is finding the concentration of peptide in the raw powder so that the manufacturer would know how much raw to use to get a particular dosage in a vial. Whereas, end user clients are only interested in the finished product and the absolute amount of the peptide.

Blind-Testing Vials

Q: Can you test blind vials?

A: Given there are so many different options, investigating all of them takes quite a lot of our time, so we prefer not to receive such orders. We'd have to charge our time as well. For example, a client orders analysis for BPC-157, TB-500 and Tirzepatide and sends three unlabeled vials. I just sigh, moan a little and we do it, as it's not too much trouble figuring out the three peptides. But something completely unknown? Could be additional hours of work.

Differentiating Tirzepatide acetate and Tirzepatide sodium?

Q: Is there any other analytical method that could differentiate between Tirzepatide acetate and Tirzepatide sodium?

A: Ion chromatography is generally the method of choice for that.

Turnaround Time for Test Results

Q: What is the turnaround time for test results?

A: Our average turnaround is 5 days after sample receipt for routine samples. Well, Semaglutide, Tirzepatide and Retatrutide our average turnaround is usually 2-3 days, unless there has been a huge intake of orders at once. We've had a guy in the US decide to get stuff tested on Tuesday for the first time ever and he had his result on Friday.

There are exactly three samples that are in our lab for 14 days and there is no sample that is in the lab longer. And those three are rare and uncommon peptides. Feel free to link such a claim to me. If somebody is lying about our turnaround it throws a bad light on my business and I'm not having that.

Cap Color on Test Results

Q: Why might cap color not be listed on test results?

A: If they are labeled otherwise, we use that label. Some request it outright to not be listed.

Submission and Shipping

Sample Submission

Q: How can I submit a sample for testing?

A: Email us at Info@janoshik.com

Q: Do you accept samples in non-standard containers (i.e. not in sealed vials)?

A: We generally prefer our samples in sealed untouched vials

Q: Do you accept samples that have already been reconstituted?

A: We prefer them to not be reconstituted before arriving at our lab.

Q: Do I get my original vial back after testing?

A: The short answer is NO. Often, the product is used up in the testing. If there is product left over, we are legally bound to destroy anything we receive for testing. We have tax and customs exceptions as a testing laboratory, so we skip VAT and duties on imports, but we are legally required to destroy what we test. Additionally, we test a lot of scheduled substances so it's more straightforward for us to simply destroy everything.

Receiving Email Responses

Q: What happens if I emailed you and did not receive a response?

A: If it was during the weekend, you surely would have gotten an automated email that we'll get to you on Monday. Please also account for the time zone differences, we are in the EU.

International Testing

Q: Getting tests completed internationally is difficult and time consuming. Any suggestions?

A: This week I have handled 11 clients from the US and Canada, 6 of which emailed us for the first time in their lives. Five (5) of them already have their results. That's how difficult it is. We try our best to help our clients to get the payments and samples to us. I understand it is not always a perfectly smooth process. We deal with 40+ shipping companies from 25 countries, but we try to help as much as possible.

Testing Raw Peptides

Raw Powders

Q: For raw powder, what are the common substances other than peptides? Water, salt, acid? Can a raw powder, once measured, shipped, received and opened, absorb moisture from the air and have a higher water content?

A: Water, counter-ion. Yes, water absorption DEFINITELY happens with a couple peptides, in significant amount. Silly me never wrote down which ones, though. I think BPC-157 loves water if I recall correctly.

Overfill

Q: How do you measure overfill in vials?

A: We measure the total content of the vial. Weighing the bottle provides no information whatsoever. The majority of mass in the vial is not peptides, it's fillers and the ratios can vary. Vial size doesn't matter. You don't need to get all the liquid out. When you have a solution, it is homogeneous, one part of tea isn't more 'tea' than random other part, given enough mixing. So, if you measure 1/1000th of a solution, you just multiply it by 1000 and you know how much solvent you've used. Funnily enough, you don't even have to know how much solvent you've used, if you have some internal standard on top of that, but that's another story.

Glossary

AOD	AOD-9604
API	Active Pharmaceutical Ingredients
BAC Water	Bacteriostatic Water
BPC	BPC-157
CJC	CJC-1295
COA	Certificate Of Authenticity
DMSO -	Dimethyl sulfoxide
DSIP	Delta Sleep Inducing Peptide
EU	European Union
FCE	First Choice Equine (https://www.firstchoiceequine.com)
FDA	Food and Drug Association
Frag, Frag 176-191	Fragment. ie. Human Growth Hormone Fragment 176–191
FTIR	Fourier-transform infrared spectroscopy
GCMS	Gas Chromatography Mass Spectrometry
GH	Growth Hormone
GLP	Good Laboratory Practice
GLP-1	Glucagon-like peptide 1
GMP	Good Manufacturing Practice
hCG /HCG	Human Chorionic Gonadotropin
HGH	Human Growth Hormone
HMG	Human Menopausal Gonadotropin
HNMR	H NMR is a go-to technique to help identify or confirm the structure of organic compounds or those that contain protons
HPLC	High Performance Liquid Chromatography
Ipa	Ipamorelin

ISO	International Organization for Standardization
ISO 17025	ISO Lab Certification
IM	Intramuscular
LCMS	Liquid Chromatography–Mass Spectrometry
LPS	Lipopolysaccharide
Meso	Meso-RX forum (https://thinksteroids.com/)
MIC	L-Methionine, Inositol, and Choline
MJ	Mounjaro, a brand name of Tirzepatide, made by Eli Lilly.
MS	Mass Spectrometry
MZ	MZ Labs
NaCl	Sodium Chloride (aka saline solution)
NAD+	Nicotinamide Adenine Dinucleotide
NIST	National Institute of Standards and Technology
NMR	Nuclear Magnetic Resonance
nm	Nanometer(s)
NS	Normal Saline
pH	Potential Hydrogen
“puck”	Condensed lyophilized powder in a vial formed like a hockey puck. May also be referred to as a “cake”.
qNMR	Quantitative Nuclear Magnetic Resonance
QSC	Chinese peptide vendor
Reta	Retatrutide
RSD	Relative Standard Deviation
SARMS	Selective Androgen Receptor Modulators (aka “steroids”)
Sema	Semaglutide
Subq/SQ	Subcutaneous
TAMC	Total Aerobic Microbial Count

TB	TB-500
TFA	Trifluoroacetic Acid
Tirz	Tirzepatide
TYMC	Total Yeast and Mold Count
UV	Ultraviolet
UVC	Ultraviolet-C
UV-VIS	UV-vis spectroscopy
VAT	Value Added Tax
XCE	Defunct Chinese peptide vendor

Thanks to “sindelfingenw” and “ArkieGirl501” for taking on the huge task of culling questions from the various Discord Servers and doing an initial compilation of the data.