Beginner's Guide To IGF1-lr3

- **IGF-1 Reconstitution**
- **Making 0.6% Acetic Acid from Vinegar**
- **Injection Technique**
- **Sterile Procedure**
- **Items You Will Need**
- **…and more!**

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Preface

The goal of this guide is to help both those that have not used IGF-1lr3 before and for those that simply would like a methodical approach to the “mechanics” of running it. This guide does not expand on the biochemistry of IGF-1, aside from a very simple introduction to it. I suggest reading a book or searching forums to educate yourself about the biochemistry of “peptides” or “IGF” if you require in-depth knowledge.

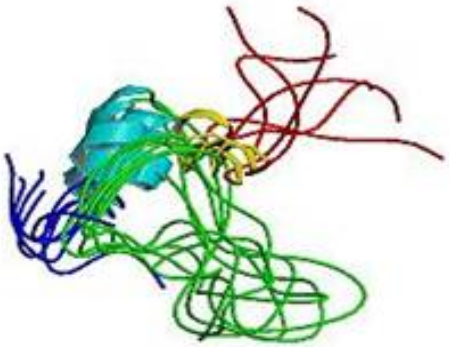
I am not a physician, thus cannot and do not diagnose ailments or diseases and/or nor do I suggest that IGF-1 is a remedy for any illness or diseases. IGF-1 should be treated with much respect. It is research compound, thus you should use at your own risk.

Currently (05/31/2008), in the United States, IGF-1lr3 is a research compound. It is legal to own this substance to the best of my knowledge (at current time). I am not an attorney, so please review your local law(s) regarding possession and administration of this therapeutic protein.

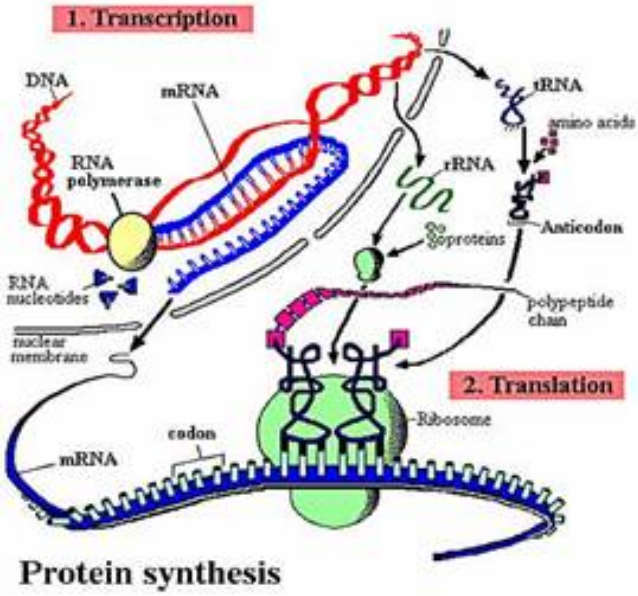
I do not condone the usage of IGF-1lr3 unless you are qualified to do so. This guide is provided as a research & development tool only.

IGF-1lr3 Overivew

Background:
Long Arg3 Insulin-like Growth Factor-I (Long-R3-IGF-I) is an 83 amino acid analog of IGF-I comprising the complete IGF-I sequence with the substitution of an Arg for the Glu at position 3 (hence R3), and a 13 amino acid extension peptide at the N-terminus. Long-R3-IGF-I is significantly more potent than IGF-I in vitro. The enhanced potency is due to the markedly decreased binding of Long-R3-IGF-I to IGF binding proteins which normally inhibit the biological actions of IGFs.



Description:
Recombinant Human Long-R3-IGF-I produced in E. coli is a single, non-glycosylated, polypeptide chain containing 83 amino acids and having a molecular mass of 9111 Dalton.



0.6% Acetic Acid Overview

Acetic Acid (AA) will be used to reconstitute (turn your lyophilized IGF-1 into a liquid form) your IGF-1. The standard is to use 0.6% AA. This concentration is typically not available for you to purchase. You can make your own 0.6% AA and I will show you how below (many have used this method successfully).

Making 0.6% Acetic Acid

You will have to purchase a few items upfront. Here is a "grocery list" of items you will need. I have provided check boxes for you to check off once you have purchased these items.

Items Needed:

- ☐ Distilled white vinegar (grocery store)
- ☐ Distilled water (grocery store)
- ☐ 0.2-0.22um sterile Whatman syringe filter ⟷
- ☐ 10mL syringe with a luer lock tip
- ☐ ~20-22 gauge needles (just the needles)
- ☐ Sterile glass vial (10-20mL)
- ☐ Alcohol prep pads – sterile kind (70% isopropyl alcohol)

Quick Guide:

1. Swab the top of your sterile vial with alcohol prep pad (70% isopropyl alcohol)
2. Mix 7.5mL distilled water with 1.0mL vinegar
3. Add Whatman syringe filter
4. Add sterile ~20ga. needle to end of Whatman filter
5. Inject the 8.5mL of solution into the sterile vial
6. You now have sterile 0.6% acetic acid

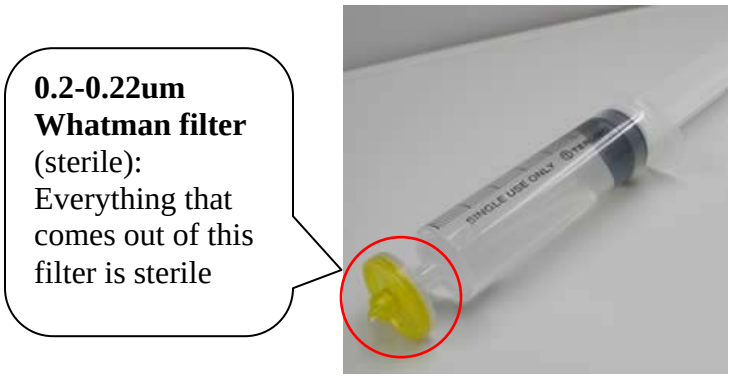
Detailed Directions:

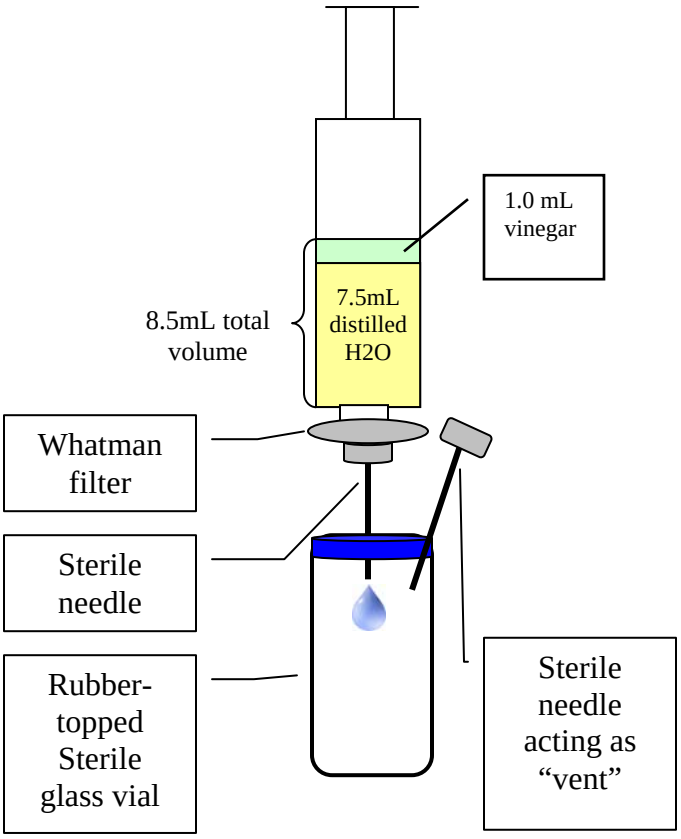
1. Wash you hands thoroughly
2. *Optional*: wear alcohol treated exam gloves (rub your gloved hands together with 70% isopropyl alcohol on them until dry)
3. Using a sterile alcohol prep pad, swab the top of your sterile glass vial (into which the acetic acid solution will be held in)
4. Using the 10mL syringe with a ~20ga. needle on the end, draw up 7.5mL distilled water
5. Using the same syringe, now draw up 1mL vinegar
6. Remove needle from the syringe and discard
7. Attach 0.2-0.22um Whatman sterile syringe filter (do **not** touch the free end that will have a needle on it)

8. Put a **new, sterile** needle (~20 gauge) onto the free end of the Whatman filter (do **not** touch needle)
    a. **Do not use the same needle on the Whatman that was used to originally draw up the unsterile vinegar and distilled water.**
9. Put a ~20 gauge ***sterile*** needle into the top of your sterile glass vial to act as a vent
10. Inject the acetic acid solution into the vial
11. You are now done and should have sterile 0.6% acetic acid

Notes:

1. These items **MUST** be sterile: 20-22ga. Needles, whatman filter, glass vial
2. Whatman filter: These small, sterile filters are used to filter the acetic acid solution so it is sterile. It does not matter that the liquid in your syringe (distilled water & vinegar) is not sterile, nor does it matter that the syringe itself is not sterile. Once the liquid goes through the filter it is STERILE. Thus, everything after the filter must be sterile!
3. You will most likely use 1mL (milliliter) of 0.6% AA to reconstitute your IGF-1. Thus, you should make at least 1.5mL. In reality, it's just as easy to make 8.5mL as I have stated in the above directions. You will have plenty for use later then.
4. Do **NOT** reuse the Whatman filter nor any needles! Discard immediately.





Reconstituting IGF-1lr3

Reconstitution is simply the addition of the 0.6% AA to your lyophilized IGF-1. Assumption: 1mg/mL IGF-1/AA (1mg IGF-1 will be combined with 1mL AA; 1mg IGF-1 is the same as 1,000mcg)

1. Swab the top of your **IGF-1 vial** with a sterile alcohol prep pad
2. Swab the top of your **0.6% AA vial** with a sterile alcohol prep pad
3. Using either multiple insulin syringe volumes (example: 2 x 0.5cc) or a single large syringe, obtain 1.0mL of 0.6% AA.
4. In the IGF-1 vial, insert a sterile ~20 ga. needle to act as a vent
5. Inject the 1.0mL of AA very slowly and dribble it down the side of the vial.
    a. Be very careful with this peptide as it is very delicate!
6. Remove the needle & syringe and discard
7. Gently swirl the vial or roll between your hands.
    a. Again, be very gentle here
8. You now have 1mg/mL of IGF-1
    a. This is the same as: 1,000mcg/mL

Notes:

1. If you added 2mL of AA, it would be a 0.5mg/mL
2. I have an Excel calculator that will help you with these calculation. Use the "search" function on www.anabolicminds.com to search for "calculator" in the IGF-1 section. Or simply PM me (papapumpsd on www.anabolicminds.com) and I can send it to you.

Injecting IGF-1lr3

If this is your first time with injections, don't worry. You will be using a very fine gauge insulin syringe which means you will most likely have nearly effortless injections. These things are so tiny and sharp you may not even feel it penetrating. If you use sterile procedure, aspirate prior to injection, and have diluted your IGF-1/AA solution with enough bacteriostatic water (BW), you should have no issues with your injections and very minimal post-injection discomfort (if any at all!).

I cannot stress enough the importance on two topics: A) sterility, and B) pre-injection aspiration. **Always** swab the injection site(s) with a sterile isopropyl alcohol (IPA) pad and aspirate prior to injecting the IGF-1. **No questions asked!**

You will most likely intramuscular (IM) injections, but subcutaneous (sub-q) injections are also followed by some, but current theory is that IM will yield a localized effect. By "localized effect", I am referring to the effect IGF-1 will have at the injection site. So if you inject IM into biceps, it is thought that your bicep muscles will get more of a dose of IGF-1 than other parts of your body (some which you don't want to be effected, such as the intestines). Both types of injections will have systemic effects (affecting the body as

a whole). Long R3 IGF-1 has an estimated half-life of 20-30hrs (taken from IGTROPIN data).

This guide assumes you will be doing bilateral IM injections. More below.

Bilateral injections are injections that are evenly divided between two muscles. If you are injecting 40mcg (micrograms) bilaterally, you will be injecting 20mcg into the right bicep and 20mcg into the left bicep.

It is highly recommended that you inject your peptide post workout (PWO). You have a small window of optimal opportunity. Ideally, you would inject immediately PWO, but some do not like the idea of injecting in a public location, such as the gym. Your next best option is to make your way home ASAP and have your needles loaded and ready (with your alcohol swabs sitting near by).

Sterility

Without a doubt, sterility is a major concern with injections. You have to be conscious of bacteria and other infectious agents at all times when performing injections or other procedures that require sterility (such as reconstitutions and making 0.6% AA).

Bacteria (and viruses, and spores, etc) are invisible to the naked eye. Yet they are everywhere. It is very important that you acquire sterile alcohol prep pads (make sure it says “sterile” before you buy them). They are extremely cheap and effective.

Wash your hands! Before attempting anything requiring sterile technique, wash your hands and dry them with a clean paper towel (not the dirty towel hanging in the bathroom!). For optimal sterility, you may purchase exam gloves (latex or non-latex) and, after putting them on, you can dump some isopropyl alcohol (IPA) onto them and rub your hands together thoroughly. Now you really have sterile hands. Exam gloves are very inexpensive as is the bottle of IPA. IPA can be purchased for ~$1/bottle in the grocery store where the band-aids and whatnot.

I recommend you use a fresh syringe for each injection. Yes, some choose to use one syringe, but my feeling is that the syringes are so inexpensive and the risk of cross-contamination from one injection site to the other isn’t worth the risk. Furthermore, every time your syringe needle has to penetrate something (rubber stoppers in vials, skin, etc) it dulls the tip. Thus, maximum comfort is also achieved with fresh syringes.

This topic of “one or two syringes” can be argued, but if it’s your first time, play it safe and get off to a great start by using 2!

Pre-injection Aspiration

Pre-injection aspiration is what you do after the needle has penetrated the muscle. You must gently and slightly pull back on the needle's plunger to see if you have hit a vein/artery.

Either of two things will happen upon aspiration: A) bubbles/air and/or clear liquid will appear in the syringe (this is good), or B) blood will appear (bad).

If A) occurs, proceed with your injection. If B) occurs, then simply withdraw the needle, and re-pin a different location in that same muscle. You do NOT want to inject your solution into a vein/artery! This may result in very serious consequences. Don't worry, you can avoid this by simply aspirating slightly. Have faith in yourself.

Injection Procedure

First, do not get all worked up over injecting IGF-1. Easier said than done, I know. But the reality is, the insulin syringes are extremely gentle. Also, millions of people around the world, including women and children, use these syringes daily to treat Diabetes. So you know it can't be that bad (seriously)! I **highly recommend** watching a couple videos on youtube regarding intramuscular (IM) injections to get a general idea of how they're done if you've never witnessed them!

Back-Loading With Bacteriostatic Water (BW)

Back-loading is a process in which you dilute the IGF-1/AA solution that is in your syringe. The point is to dilute the acidity to a point that it will no longer cause tissue necrosis (death/damage) or pain upon injection. It is recommended to dilute no less than 4:1 (4 parts BW to 1 part IGF-1/AA).

Example: If you are injecting 40mcg bilat, IM, you will have two syringes each with 20mcg IGF-1. Assume you want to draw 2 IU IGF-1. You will draw **2** IUs of the IGF-1/AA solution, then draw 2x4 = **8** IUs of BW (four times the amount of IGF-1/AA solution). The **total** number of IUs in each syringe will be **2** + **8** = **10** IUs. It will not hurt you if you decide to back-load with more BW. It is a personal preference.

******Use my Excel-based "IGF-1" calculator to determine how many IUs you will need for a particular insulin syringe (1cc, 0.5cc, 0.3cc).***

Recommended Best Injection Method: Injecting bilaterally, post workout, intramuscularly (Bilat, PWO, IM)

Items you will need

1. Alcohol prep pads
2. 2 insulin syringes
3. Bacteriostatic water (BW)
4. *Optional: exam gloves*
5. *Optional: IPA (to rub gloves with and to clean the surrounding area)*

Injection Directions

1. Wash your hands thoroughly
2. *Optional:* put on exam gloves and rub with IPA until dry
3. Using an alcohol swab, clean the tops of both the IGF-1 vial and the BW vial.
4. Using a fresh alcohol swab, thoroughly clean the injection sites (let dry)
5. Fill each syringe with the appropriate amount of IGF-1/AA solution
    a. Do **NOT** touch the needles to anything but sterile surfaces!
    b. It is recommended that you clean/sanitize the area/surfaces you're working in, in case you mindlessly touch a needle to a table (or other area).
6. Back-loading: Draw up the necessary amount of BW into each syringe.
    a. Tilt the needle up and down so the bubble(s) rise and fall, which mixes the solution slightly
7. With the needle pointing up, flick the syringe body to get the bubbles to rise to the needle
8. Slowly expel the air; be careful to not quirt liquid out as this wastes IGF-1
    a. It takes >3mL of air to cause harm; small volumes of accidentally injected air will most likely be absorbed by muscle tissue
9. Insert syringe and aspirate by slightly pulling up on the plunger to see if you have hit a vessel. If you see blood, remove needle, and try again (no need to change syringes). If you do NOT see blood, proceed to inject.
10. Perform "**7**." thru **"9**" above on other side.
11. Discard sharps in appropriate container

Glossary

Acetic Acid (AA): An acid that, when diluted to 0.6%, will act as a preservative for your IGF-1. An off-the-shelf version of 5% AA is distilled white vinegar; your IGF-1 may be supplied in acetic acid (usually 0.6%)

Aspiration: The technique of checking to see if your inserted needle is in a blood vessel. It is performed by gently pulling up on the syringe plunger until you either see bubbles/air/clear liquid, or blood. If you see blood, remove needle, and re-try the insertion.

Back-loading: The process of diluting your IGF-1/AA with bacteriostatic water, prior to injection. The purpose is to dilute the acidity of the AA so it doesn't cause tissue damage and so it doesn't cause injection burn/discomfort.

A. Draw desired amount of IGF-1/AA solution
B. *Back-load* with BW: draw desired amount of BW

Bacteriostatic Water (BW): This is water for injection (sterile) that has benzoyl alcohol (BA) added to it to ward of contamination. You use BW to dilute your IGF-1/AA solution prior to injection (aka, "back-loading").

Bilateral Injection (bilat): An injection which involves the administration of IGF-1 in equal amounts to each side of the body. If you are injecting 40mcg IGF-1 into the biceps bilaterally, you will be injecting 20mcg into <u>each</u> bicep (left & right side).

Distilled Water: Has virtually all of its impurities removed through distillation. Distillation involves boiling the water and then condensing the steam into a clean cup, leaving nearly all of the solid contaminants behind. This is **NOT** sterile water. It can be purchased in any grocery store in the "water" isle.

Endogenous: Substances that originate from within an organism, tissue, or cell. It is the opposite of *exogenous*

Exogenous: Refers to an action or object coming from outside a system. It is the opposite of *endogenous*.

IM: Intramuscular; typically refers to the type of injection where you inject a substance directly into muscle tissue

IGF-1 lr3: A peptide that is responsible for new muscle tissue development; it is synthetic and has a much longer circulatory life than endogenous IGF-1

Lyophilized: The form in which IGF-1 is typically supplied; this is a freeze-dried protein which is performed in a vacuum; appearance may range from a fine, loose white powder, to a white solid "paste"-type substance

PWO: Post Work Out; refers to the time period when the administration of IGF-1 is thought to be the most effective (immediately PWO).

Reconstitution: The addition of 0.6% acetic acid to lyophilized IGF-1r3 to get it into solution. Typically one reconstitutes using 1mL or 2mL of acetic acid, yielding 1mg/mL or 2mg/mL of IGF-1/AA.

Sub-q: Subcutaneous; typically refers to the type of injection where you inject a substance under the skin; this results in systemic distribution of substances