Do it yourself (“DIY”) guide

How to make and treat yourself with a peptide vaccine targeting the *EGFR T790M* mutation

Contents

This guide is also available in other languages:

如何自制及使用针对 EGFR T790M 突变的肽疫苗

Guía Hágalo Usted Mismo (“HUM”): Cómo preparar y tratarse usted mismo con una vacuna péptida dirigida a la mutación EGFR T790M

Expérimentation d’automédication: Guide d’administration d’un vaccin peptidique ciblant la mutation T790M de l'EGF

Disclaimer: *This guide is for informational purposes only. Do not consider it medical advice. If you find the treatment described here interesting, please discuss with your doctor before proceeding.*

Other guides by the same authors

Guides for treatment targeting the *EGFR L858R* mutation:


DIY guide: How to make and treat yourself with a peptide vaccine targeting the EGFR L858R mutation


如何自制及使用针对EGFR L858R突变的肽疫苗


[Work in progress]


Expérimentation d'automédication: Guide d'administration d'un vaccin peptidique ciblant la mutation L858R de l'EGFR

PART 1: FAQ

Who is this guide for?
This guide is intended for *EGFR* positive non-small cell lung cancer (NSCLC) patients who have the *EGFR T790M* resistance mutation and who would like to make and treat themselves with a peptide that potentially can help trigger an immune response against their cancer cells. The treatment is a form of vaccine immunotherapy. The treatment is not suitable for all *EGFR* positive patients, as described later in this document.

What is a peptide?
A peptide is a kind of small protein consisting of two or more amino acids linked together in a chain. The peptide that is described in this document matches a common mutation observed in *EGFR* positive NSCLC: the T790M mutation. The peptide is a chain of 9 amino acids: IMQLMPFGC (each letter represents an amino acid). For brevity, the peptide will in this document be referred to as "the *EGFR T790M* peptide" or simply "the peptide".

Why "do it yourself" ("DIY")?
The treatment is "do it yourself" ("DIY") in the sense that patients who are dedicated and willing, should be able to do the treatment by themselves, without the involvement of a medical doctor. We do emphasize that the help of a doctor would be useful, but we also are aware that most patients will not be able to find a doctor who, for regulatory and other reasons, would be willing to assist with preparing and administering the peptide. For this reason, the guide has been written so that patients with no or minimal help from medical professionals can prepare and administer the treatment themselves.

What is vaccine immunotherapy and how does it work?
Vaccines are a way humans have found to activate our immune system against a foreign invader by exposing our bodies to limited amounts of a harmful or deactivated agent. Immunotherapy works similarly to a vaccine in that you are activating your immune system to recognize your cancer as an intruder and to attack it. In cancer, vaccine immunotherapy involves administering a vaccine with the intention of treating a patient's cancer. Cancer cells harbor mutations in their DNA which make them different from normal healthy cells. Some of these mutations affect the amino acid sequence of proteins made by cancer cells. Smaller versions of these mutant proteins, called peptides, can be synthesized by labs and then injected into the body as a vaccine in an attempt to induce an immune response against the cancer cells.

Why would a patient want to self-vaccinate with the *EGFR T790M* peptide?
Preclinical studies indicate that vaccination with such a peptide may help the immune system recognize, and potentially eliminate, cancer cells. The studies to date have only been conducted in a laboratory and the peptide described in this guide has not yet been properly tested in

humans. Thus, whether the DIY vaccine immunotherapy treatment described in this document will provide any benefit to patients who decide to try it out is highly uncertain.

Who are most likely to benefit from the treatment with this peptide?

Theoretically, any patient with *EGFR* positive NSCLC may benefit from treatment with the peptide. The *EGFR T790M* peptide can be used as treatment during any stage of the disease. The peptide can also be used in parallel with any other treatment. Both patients who have documented that their cancer cells have the *EGFR T790M* mutation and patients without the *EGFR T790M* mutation may use the peptide. However, as they may have an increased risk of adverse effects of the peptide, we do not recommend that people who lack the *EGFR T790M* mutation treat themselves with the peptide.

Even if no one can, at this point in time, be certain who may benefit from injections with the peptide and who may suffer from such injections, we have created the following table to indicate who we believe should, and who should not, consider vaccinations with the peptide.

Table 1: Presence of* EGFR T790M *mutation and possibility of benefitting from peptide

Patients who...	**Will the peptide be of benefit?**	**Should I try the peptide?**
have documented they have *EGFR T790M* in their cancer cells	It may, but any benefit is speculative.	
have NOT documented they have *EGFR T790M* in their cancer cells	It may, but it may also cause unwanted adverse effects.	

Legend:

	The peptide may be worthwhile to consider.
	We do not recommend to self-vaccinate with the peptide.

Furthermore, the likelihood of a positive effect from the peptide vaccine will depend on the patient's HLA types. What HLA types are and how to find out which ones you have are described later in this document.

Are there any patients who should not self-vaccinate with the peptide or who may not derive any benefit from such vaccinations?

The table below indicates types of patients who may not be suitable for self-vaccination with the peptide.

Table 2: Patients who may not want to self-vaccinate with the peptide

Patients who...	**Comments**	**Should I try the peptide?**
are germline carriers of the EGFR T790M mutation	Such patients are unlikely to benefit from vaccinations with the peptide. Note also that the safety of the peptide is even more unknown for such patients. These patients may be at greater risk for getting severe side effects, potentially fatal, than patients who are not carriers of germline *EGFR T790M* mutations. It is estimated that around 1% of lung cancer patients have germline *EGFR T790M* mutations. If you do not know whether or not you have a germline *EGFR T790M* mutation you can ask your oncologist about this. If you have one or multiple family members who also have been diagnosed with lung cancer (especially *EGFR* mutant lung cancer), it is more likely than average that you have an *EGFR T790M* germline mutation.	
are on immuno-suppressive medication	Patients who are on immunosuppressive medications, such as steroids, have a lower chance of benefitting from vaccinations with the peptide. Note that the dose and strength of the immunosuppressive medicine likely matters. Patients who are on medications that are weakly immunosuppressive, or on low doses of steroids, may still wish to vaccinate themselves with the peptide.	
have severely compromised immune systems	As vaccinations work through the immune system, patients whose immune system is severely compromised are less likely to benefit from vaccinations with the peptide. Furthermore, such patients may also be less able to tolerate potential adverse effects from the peptide.	
have a life expectancy of less than 3 months	The whole process of self-vaccination takes some time, maybe around 1-3 months. Patients whose life expectancy is short may thus not benefit from vaccinations with the peptide.	

Legend:

	Carefully consider if the potential benefit of vaccinations outweigh potential risks and downsides.
	We do not recommend to self-vaccinate with the peptide.

What are HLA types?
Your HLA type determines how your immune system reacts to protect your body from foreign invaders. Many peptides, including the one described in this guide, are more suitable for patients with specific HLA types.

In the *Step-by-step guide* there is a table showing which HLA types give the highest probability of benefitting from vaccinations with the *EGFR T790M* peptide. The *Step-by-step guide* also describes how you can test which HLA type you have.

How likely is it that I have an HLA type that gives me a reasonable chance of benefitting from vaccinations with the peptide?
Most of the research that has been done on the peptide has looked at the possible effect that the peptide may have on patients who have the HLA type A*02:01. Thus, patients with this HLA type may have a greater likelihood of benefitting from vaccinations with the peptide than patients with other HLA types. The probability of having this HLA type depends on your ethnicity. In some populations around 50% of people have the HLA A*02:01 type, while in other populations almost no one has it. Here is a map that shows the frequency of the HLA A*02:01 in many populations: http://www.allelefrequencies.net/hla6008a.asp?hla_allele=A*02:01.

What are the risks?
Peptide vaccines targeting cancer specific mutations are generally thought to be safe. However, the safety of the described peptide still must be regarded as unknown as it has not yet been tested properly in humans. Furthermore, a DIY approach entails additional risks. Thus, treating oneself with the peptide described in this guide may be dangerous. Any patient considering to self-vaccinate with the *EGFR T790M* peptide should be aware that such vaccination can cause serious harm and perhaps even be fatal.

What are the side effects?
Typically, the most common side effect following vaccinations with peptides is a temporary rash at the injection site. Other common side effects include: flu-like symptoms, fatigue, arthralgia, rash, pruritus, fever and headache. Usually these side effects are mild and temporary. Furthermore, any vaccine, including the one described in this document, can cause anaphylactic shock.

Finally, as the peptide described in this document has not yet been properly tested in humans, it may cause unknown, unexpected and serious side effects. It cannot be ruled out that vaccinations with the peptide can cause fatal side effects.

What is an “adjuvant”?
An adjuvant is a compound that is given together with the vaccine to indicate to your immune system that the injected material is dangerous and foreign. Vaccinations without an adjuvant may be unsafe as it can induce immune tolerance towards the peptide – thus defeating the

purpose of the treatment. Hence you should NOT vaccinate yourself with the peptide described in this document unless you also apply an adjuvant, as described in the *Step-by-step guide*.

Which adjuvant do you suggest to use?
Several adjuvants can be used for vaccinations. We suggest using Aldara cream (5% imiquimod) as an adjuvant as it is relatively easy to get hold of and apply. Furthermore, Aldara cream was used in this in the following case study, with apparently good effect:

Rapid tumor regression in an Asian lung cancer patient following personalized neo-epitope peptide vaccination

Can I combine the vaccine with any other treatment?
Most *EGFR* positive lung cancer patients get some form of treatment. The most common treatments are:

1. Targeted therapies (such as e.g. erlotinib, gefitinib, icotinib, afatinib and osimertinib)
2. Chemotherapy
3. Immunotherapy in the form of checkpoint inhibitors (such as nivolumab, pembrolizumab, atezolizumab and ipilimumab)
4. Radiation
5. Surgery

As mentioned in this document, it is not known whether self vaccination with the described peptide is safe. It is, consequently, also not known whether it is safe to combine the peptide with any of the above mentioned treatments, or any other treatment lung cancer patients may be prescribed. That being said, there is no evidence to indicate that combining the peptide with any of the above treatments is unsafe.

Some treatments may potentially be synergistic with the peptide described in this document. In particular, peptide vaccines and immunotherapy in the form of checkpoint inhibitors may be synergistic. If you are able to get hold of checkpoint inhibitor treatment, it may increase the likelihood that vaccinations with the peptide will trigger the wanted immune response.

Note that treatment with checkpoint inhibitors can cause dangerous, including fatal, side effects. Any such treatment should thus be administered and monitored by a competent doctor.

How much will it cost?
We estimate that the total cost of the DIY treatment described in this document, including the cost of doing the HLA testing and buying the peptide, adjuvant and required accessories, are as follows:

- In Europe and North America: around €500-€2000 ($600-$2400).
- In China: 1000-2000 RMB.

The costs will have to be paid out-of-pocket by the patient.

How long will it take to make the peptide?
Going through the whole process described in the *Step-by-step* guide will probably take around 1-3 months.

Can my doctor help me with making this peptide and treat me with it?
We believe that a patient who can get a medical doctor to help with the treatment described in this document can benefit greatly from this. However, we are also aware that most doctors, for regulatory and other reasons, will refuse to help patients who wish to try this peptide. For this reason, we have attempted to make this guide in such a way that a willing and competent patient will be able to self-vaccinate with the *EGFR T790M* peptide.

We do, nevertheless, encourage patients who wish to try out the DIY peptide vaccine described here to discuss the treatment with their doctors. Do not expect your doctors to support the treatment, and if they provide good reasons for why the treatment may be particularly dangerous for you, then please listen to them.

Is it really feasible for a patient to make and inject him- or herself with the peptide?
Although we realize that making the peptide described in this document and treating oneself with it will seem like a daunting task for most patients, we do believe it is realistic for a dedicated patient to manage to do this. One of the authors of this guide has helped a family member with the process of making and injecting a peptide very similar to the one described in this document.

Has anyone ever done this before?
A family member of one of the authors has had several injections with the peptide described in this document and has not experienced any significant side effects. Note, however, that the experience of one single patient does not mean that the peptide is safe for everyone. Note also that the patient in question received the peptide under medical supervision and not in the DIY fashion described in this document.

I want to read some of the scientific literature about this before I proceed, where can I find it?
The main article which describes the testing which has been done on the peptide described in this guide is the following:

A peptide antigen derived from EGFR T790M is immunogenic in non-small cell lung cancer

Here is a press release and a presentation from a Japanese company called BrightPath Therapeutics Co., Ltd. (note: the company was at the time of the press release called Green

Peptide Co., Ltd.) that intends to use the peptide described in this document in a clinical trial for *EGFR* positive NSCLC patients:

Information on the Initiation of Neoantigen (Genetic Variant Antigen) Peptide Vaccine Development

Here is a paper which may be instructive to read as it describes the vaccination of an *EGFR L858R* positive lung cancer patient with peptides matching mutations identified in the patient's tumor:

Rapid tumor regression in an Asian lung cancer patient following personalized neo-epitope peptide vaccination

Finally, here is a paper that describes a small clinical trial where melanoma patients were vaccinated with peptides matching mutations in their tumors:

An immunogenic personal neoantigen vaccine for patients with melanoma
(The full paper can be accessed by pasting this ID into the search bar on www.sci-hub.cc: 28678778.)

Note that none of the above articles describe exactly the do it yourself treatment described in this document. The above articles can, nevertheless, provide useful insight into the rationale for wanting to try out the treatment.

Who wrote this document and why did you do it?
This document is the result of a collaborative effort made by patients, caregivers and scientists who believe that patients in many cases ought to play a larger role in their own medical care, including attempting to save their own lives by trying out new, science-based treatments. Some of us have experience in preparing and administering DIY peptide vaccines as well as peptide vaccines made under stricter supervision by researchers and doctors. In this document we have, for the benefit of other patients, tried to compile our experience with and knowledge of such vaccines.

One important goal of this guide is to empower patients with information and knowledge so that they understand that even if they have been given up by their doctors, there are treatments one can consider and which may be possible to implement without the help of a medical doctor.

I have some questions or some feedback, is there someone I can contact?
A facebook group has been created to support people who would like to go ahead and try to self-vaccinate with the peptide described in this guide:

https://www.facebook.com/groups/DIYCancerVaccines/

Please join this group if you have questions or would like to share your DIY cancer vaccine experience with other patients.

PART 2: Step-by-step guide

This part of the document describes the steps you will need to go through if you would like to self-vaccinate with the *EGFR T790M* peptide.

Step 1: Find out your HLA-A type

Do HLA-A typing to determine your HLA-A types. The cost is about $200-300 depending on the provider you use for the testing. It is important to test the HLA-A type with a resolution of four digits.

The test requires either a cheek swab or a blood sample which can be shipped to the lab doing the testing. Here are three labs that offer HLA testing:

- BMT Bonemarrowtest.com, US: https://www.bonemarrowtest.com/start-your-order-now.html#!/~/product/id=16065147
- IMD Berlin, Germany
- BGI, China

NB: Please specify that you need the test to be high resolution, i.e. 4 digits deep.

Although not strictly necessary for evaluating whether or not to vaccinate yourself with the peptide described in this document, we do recommend people to also get the following HLA types tested: HLA-B, HLA-C and HLA-DRB1. Testing also for these may increase the cost, so depending on your budget, you may decide to not do this. Knowing these other HLA types may be useful for deciding whether or not you would like, one day in the future, to vaccinate yourself with other peptides than the one described in this document.

When you have identified your HLA-A types, you can use the table below to determine whether it is more or less likely that the *EGFR T790M* peptide will be beneficial for you. Note that the peptide is unproven and it is not known that it will be effective for any patients.

Table 3: HLA types and possibility of EGFR T790M peptide having a positive effect

HLA type	Will peptide have a positive effect?	Should I try the peptide?
A*02:01	Both computer simulation (also called “in silico simulation”) and preclinical evidence indicate that there is a reasonable chance that the peptide may have a positive effect.	
A*02:03 A*02:05 A*02:06 A*24:02 A*32:01	In silico prediction indicates that there is only a small chance that the peptide will have a positive effect.	
Any other HLA types	In silico prediction indicates that there is a very low probability that the peptide will have a positive effect.	

Legend:

	Vaccinations with the peptide may be worthwhile to pursue.
	The probability of the peptide having a positive effect is low. Carefully consider if you want to spend time on this or not.
	We do not recommend pursuing vaccinations with the peptide.

If you have an HLA type for which it is less likely the peptide will work, you may want to stop the process at this point and rather focus on other treatment options.

Step 2: Have the peptide produced

The amino acid sequence of the peptide is as follows: IMQLMPFGC. You need to find a company who can produce the peptide. Several such companies exist. Here are two good companies that both can ship to many countries:

- Genscript, USA
- Intavis GmbH, Germany

Patients in mainland China may use the following links to enquire about production of peptides:

- http://www.bioon.com.cn/server/show_product.asp?id=8113&from=singlemessage
- http://www.51peptide.com/peptide.html?from=singlemessage

When ordering the peptide, the following specifications can be used:

- Amount: 10-15 mg
- Purity: above 90% (the higher the better)

You should ask the lab about purity and require them to provide you with a report on purity, and ideally a mass spectroscopy spectrogram so that you can see any contamination. Usually there is some minor residue, like shorter peptide chains; these are most likely harmless as long as the purity is high.

To facilitate some of the later steps, you can request the company that makes the peptide to split the total amount into a number of different vials (so called “aliquoting”), each containing the amount needed per vaccine injection. The amount of peptide needed per vaccine injection is 300 micrograms. Thus, if you for instance order 12 mg, you can ask the manufacturer to split the sample into 40 different vials each containing 300 micrograms of peptide. Note that not all peptide producers offer such aliquoting.

Step 3: Have the peptide delivered

Have the peptide shipped to you. The manufacturer will know how the peptide should be shipped. The peptide will usually be shipped overnight, but a few days transit is fine as long as the protective packaging is intact on arrival. Never accept peptide vials that have been opened or compromised during transit.

Step 4: How to handle and store the peptide

To reduce the risk of contamination and subsequently unusable peptides or possible infections, please follow these instructions for how to handle and store the peptide:

- Wash your hands and then wear sterile disposable gloves that have been cleaned with medical alcohol when handling the peptide, mixing the vaccine or giving the vaccine subcutaneously.
- Consider using a disposable medical face mask when you handle the peptide.
- If the peptide will not be used immediately, store it in its original container inside a sterile plastic bag in the freezer (around -20°C). If the total amount of peptide is split into different aliquots, then freeze all aliquots which will not be used immediately. The peptide can be stored for many months or even years in the freezer.
- Freezing and thawing multiple times should be avoided.

For detailed questions regarding the storage and handling of the peptide, you can ask the peptide manufacturer. You can also find some useful information regarding this on this webpage:

https://www.genscript.com/peptide_storage_and_handling.html

Step 5: Buy the required accessories

For the vaccine injections, you will need the following:

- Sterile phosphate buffered saline (PBS): PBS is a buffered neutral solution with pH 7.2 / 7.4. Always use PBS that is sterile and intended for injection or cleaning medical equipment. PBS can be ordered at a pharmacy (might require a prescription), hospital or online at eg. Amazon.com: https://www.amazon.com/Phosphate-Buffered-Saline-PBS-Sterile/dp/B00RKPGHUU/.
- Syringes: for instance 1 ml diabetes/insulin syringes. These can be bought online or at a pharmacy.
- Alcohol swabs, cotton balls or tissue: these can be bought at any pharmacy.
- Aldara cream (5% imiquimod): In some countries a prescription is required for Aldara cream. If you live in a country where this is required, speak with your GP or any other doctor who is willing to prescribe this to you. Aldara cream may also be possible to buy online without a prescription.

Step 6: How to prepare the peptide for injection

An instruction video showing how to do this step has been made. The video corresponds to scenario 2 described below. The video can be seen here:
https://www.youtube.com/watch?v=m3kXklp8Tc8

For the peptide to be injected, it needs to be mixed with the PBS. It is possible to do the mixing yourself, but we recommend to cooperate with a local lab or lab technician to ensure this step is done correctly. It is important to not contaminate the mixture and, if the peptide manufacturer has not split the total amount in aliquots, to measure roughly the right amount of peptide that is to be mixed with PBS.

If you do this step by yourself, here are some general instructions:

- Swab the working area with disinfectant before start to make sure it is clean.
- Clean hands and gloves.
- Make sure there is no wind in the place you do the mixing.
- Do not use unnecessary time.
- Make all preparations before you start.
- Try to discharge any static electricity from yourself and from the vials that you are working with, as the peptide is highly electrostatic and can get stuck or fly away by static charges.

<u>Scenario 1: The peptide is split into aliquots of each 300 microgram</u>
If the peptide has already been split into aliquots, then do the following:

A. Take out one vial/aliquot from the freezer and wait some time until it reaches room temperature.
B. Add 1 ml of PBS to the vial with the peptide using a sterile syringe to inject PBS into the vial. It is important that the peptides are dissolved completely in the PBS.
C. Reseal the vial and put in fridge (4°C).
D. Move to step 7.

Scenario 2: The peptide is not split into aliquots

If the peptide has not been split into aliquots it will, in addition to steps A-D mentioned in "Scenario 1", be necessary to remove the right amount of peptide from the container that the peptide is in and then mix with PBS. We strongly recommend that you get a lab technician to help you do this step.

In this scenario, we suggest to aim to make enough mixture to last for the first 4 or 8 injections. Each injection should include around 300 micrograms of peptide and around 1 milliliter of PBS. Thus, if you mix enough for 4 injections, you should mix around 1.2 milligram peptide and around 4 milliliter of PBS. If you mix enough to last for 8 injections, you should mix round 2.4 milligram peptide and around 8 milliliter of PBS. It is important that the peptides are dissolved in the PBS.

When you have planned how many injections you would like to make, then follow these instructions:

A. For the mixing, use sterile glass vials or glassware with 4-15 ml capacity with a rubber cap that is also a membrane that you can insert a syringe needle through. These are ideal to use to mix PBS and peptide. Clean the rubber cap/membrane with alcohol before you penetrate them with a syringe.
B. Add the estimated amount of peptide (ideally while the glassware is on a high precision scale) into the glassware.
C. Draw the estimated volume of PBS into a syringe and inject the PBS into the glassware through the rubber cap. Be aware of any under or over pressure building up when injecting PBS using a syringe into a sterile glassware or vial through a rubber cap/membrane.

Once you have mixed the peptide with PBS, store the mixture at 4°C in sterile glassware in your fridge inside a sterile plastic (freezer) bag. Then move to step 7.

Step 7: Injecting the peptide vaccine

Note 1: Before you inject the peptide the first time, make sure you have read about side effects and risks elsewhere in this document.

Note 2: It is also critically important that you are prepared to do step 8 immediately after you have done the injection. Thus DO NOT PERFORM STEP 7 without having everything prepared to also do step number 8.

Note 3: Due to the risk of serious adverse events, such as an anaphylactic shock, we strongly recommend to do the first injections at a doctor's office or hospital. Inform the health provider that you will inject a subcutaneous peptide vaccine.

Note 4: If injecting at home, it is recommended to have an EpiPen (or similar device) available. Inform yourself of how and when to use it.

If you have never done a subcutaneous injection before, we strongly suggest to read this useful and detailed guide for how to do such an injection:

http://www.bcchildrens.ca/rheumatology-site/Documents/HowToGiveYourselfASubcutaneousInjection.pdf

The guide includes details on how to prepare for the injection, how to fill the syringe and how to do the injection itself.

Here is also a good video explaining how to prepare for a subcutaneous injection: https://www.youtube.com/watch?v=TA1lXPaa5to.

Furthermore, here are a couple of instruction videos which show how to do a subcutaneous injection:

- How to do subcutaneous injection into the upper arm: https://www.youtube.com/watch?v=rPTLcEBI5Fc
- How to do subcutaneous injection into the thigh: http://www.healthbanks.com/PatientPortal/Video/Fertility/SubcutaneousInjection-Thigh.htm

Once you are confident that you know how to prepare for, and perform, a subcutaneous injection, then inject the vaccine into the upper arm or into the thigh. Do wash your hands before and after injections and wear sterile disposable gloves that have been cleaned in alcohol.

Step 8: Apply the adjuvant (Aldara cream)

Immediately after having injected the peptide, apply a thin layer of Aldara cream (5% imiquimod) to an area of around 2x2 cm on and around the site of the injection. Wash your hands thoroughly after having applied the cream.

Step 9: Repeat the vaccination

We recommend injecting the peptide vaccine every week for at least 8 weeks (i.e. a total of at least 8 injections). After 8 injections, you may wish to continue with the injections, or you may stop. As the peptide has not been tested properly in humans, no one knows how long one ought to continue the vaccination.

Step 10: Monitoring

We recommend monitoring for skin rash and infections of the skin. If you suspect a skin infection, then always consult with a medical professional as soon as possible to treat any possible infection early on.

CT/PET/MRI scans which take place as part of routine treatment and follow-up may indicate whether the treatment is working or not. Furthermore, if you monitor tumor markers, such as e.g. Carcinoembryonic Antigen (CEA), you may be able to detect from these whether the treatment is working or not.

If you would like any support in the process, or if you would like to share your experience with other patients, then please join this facebook group:

https://www.facebook.com/groups/DIYCancerVaccines/