Participant Informed Consent for Clinical Research

Study title for participants: A Study of Optical Imaging with Light from Radiotracers in Cancer Patients

Official study title for internet search on http://www.ClinicalTrials.gov: A Feasibility Study of Non-Invasive Cerenkov Luminescence Imaging in Patients with Cancer

Lead Researcher: Jan Grimm, MD; 646-888-3095

If you are the parent or legal guardian of the person who is being asked to participate in this research study, you may give consent on his or her behalf. The word "you" in this document refers to your child, if the participant is a minor, or to a person with a cognitive impairment for whom you are the Legally Authorized Representative (LAR).

Overview and Key Information

Why is this study being done?

We are asking you to take part in a clinical research study. We do research studies to try to answer questions about how to prevent, diagnose, and treat diseases like cancer.

The purpose of this study is to test Cerenkov luminescence imaging, which is a different way to take pictures of your type of cancer. The researchers want to see if Cerenkov luminescence imaging can capture tumor sizes. We believe especially endoscopies and surgical procedures could benefit from this type of imaging in the future and will allow surgeons to much better detect and see remaining tumors and even hidden tumors during the surgery. Therefore, ultimately Cerenkov imaging could be used as a guide for surgical resections and be helpful for many patients in the near future.

The Cerenkov luminescence is a light that comes from certain type of radioactive drugs, like the ones used for your PET scan, therapy with Iodine-131 and even investigational studies that you may be participating in. Imagine a jet-plane flying through the air with increasing speed. A 'sonic boom' effect is created when the jet travels faster than the speed of sound. Similarly, the Cerenkov luminescence is charged particles that come from radioactive drug that travel faster through tissue than the speed of light. However, instead of sound, light can be seen.

The purpose of this study is to use the Cerenkov light from either:

- FDG: The standard clinical PET scan uses a sugar based radioactive drug (a chemical that is absorbed by the body and detected by the scanner) called18F-Fluorodeoxyglucose or commonly known as FDG. Not only does this drug give off radioactivity that is picked up by the PET scanner, but it also gives off Cerenkov light. The FDG is given through the vein around an hour before the PET scan.
- Iodine-131 (^{131}I) is used for therapy in patients with thyroid cancer and also gives off Cerenkov light.
- Radium-223 (^{223}Ra) or Xofigo, which is used for therapy in patients with prostate cancer

- ^{177}Lu-DOTATATE (^{177}Lu) or Lutathera, which is used for therapy in patients with gastroenteropancreatic neuroendocrine tumors
- ^{68}Ga-DOTATATE and [^{18}F]-PARPi, which is used for diagnostic imaging of your cancer
- And/or other investigational drugs from another study you may be participating in.

We will be trying to see if we can get a picture of your tumor using the Cerenkov light as part of your standard clinical scan, iodine-131 therapy, 223-radium therapy, ^{177}Lu-DOTATATE, ^{68}Ga-DOTATATE, [^{18}F]-PARPi and/or investigational study. We will let you know which scenario you are in before you start the study.

Taking part in this study is your choice.

You can choose to take part or not to take part in this study, and you can change your mind at any time. Whatever choice you make, you will not lose access to your medical care or give up any legal rights or benefits.

This document presents important information to help you make your choice. Please take time to read it carefully. Talk with your doctor, family, or friends about the risks and benefits of taking part in this study. It's important that you have as much information as you need, and that all your questions are answered.

What is the usual approach to my cancer imaging?

You are being asked to take part in this study because you have cancer. People who are not in a study are usually diagnosed or have their treatment monitored with an FDG PET scan. These scans use small amounts of radiation to take pictures of your cancer.

Another of these routine scans are ^{68}Ga-DOTATATE and [^{18}F]-PARPi, which are also used to monitor treatment and uses small amounts of radiation to take pictures of your cancer.

People who are not in a study are also usually treated with different types of therapies, one of them being Iodine-131. Iodine-131 is a routine clinical therapy that uses radiation. After Iodine-131 is given, people come back for a scan about 5 days later to take pictures of your cancer.

Another one of these therapies is Radium-223, or Xofigo. Radium-223 is a routine clinical therapy that uses radiation to target metastatic prostate cancer cells.

Another one of these therapies is ^{177}Lu-DOTATATE, or Lutathera. ^{177}Lu-DOTATATE is a routine clinical therapy that uses radiation to target metastatic gastroenteropancreatic neuroendocrine cancer cells.

What are my other choices if I decide not to take part in this study?

- You may choose to have the usual approach described above
- You may choose to take part in a different research study, if one is available

What will happen if I decide to take part in this study?

The study will last only 1 day for you – the day of your Cerenkov imaging. Following the completion of your Cerenkov imaging scan, you will be considered done with the study. If you are interested, you might also complete the optional imaging using the MSOT scanner. However, if you are asked to participate in a follow-up scan a few months later, then the study will last another 1 day.

What are the risks and benefits of taking part in this study?

There are both risks and benefits to taking part in this study. It is important to think carefully about these as you make your decision.

Risks

We want to make sure that you know about a few key risks right now. We will also give you more information in the *What risks can I expect from taking part in this study?* section of this consent form.

If you choose to take part in this study, there is a risk that:

- You may lose time at work or home and spend more time in the hospital or doctor's office than usual
- You may be asked sensitive or private questions which you normally do not discuss

There is also a risk that you could have side effects from the study drug(s)/study approach.

There may be some risks that the study doctors do not yet know about.

Benefits

Because this study does not provide treatment, you will not receive any health benefit from participating in the study. What we learn from the study may help other people in the future.

If I decide to take part in this study, can I stop later?

Yes, you can decide to stop participating in the study at any time.

The study doctor will tell you about new information or changes in the study that may affect your health or your willingness to continue in the study.

If you decide to stop, let the study doctor know as soon as possible. It's important that you stop safely.

If you stop, you can decide whether to let the study doctor or a member of the study team continue to contact you to ask questions about your health. We will not be able to withdraw information about you that has been used or shared with others before you informed us of your decision to stop.

Are there other reasons why I might stop being in the study?

Yes. The study doctor may take you off the study if:

- Your health changes, and the study is no longer in your best interest
- New information becomes available, and the study is no longer in your best interest
- You do not follow the study rules

- The study is stopped by the National Cancer Institute (NCI), Institutional Review Board (IRB), Food and Drug Administration (FDA), or the study sponsor, MSKCC. The study sponsor is the organization that oversees the study.

It is important that you understand the information in this informed consent document before you make a decision about participating in this clinical trial. Please read, or have someone read to you, the rest of this document. If there is anything that you don't understand, ask the study doctor or nurse for more information.

What is the purpose of this study?

The purpose of this study is to test Cerenkov luminescence imaging, which is a different way to take pictures of your type of cancer. The researchers want to see if Cerenkov luminescence imaging can capture tumor sizes. We believe especially endoscopies and surgical procedures could benefit from this type of imaging in the future and will allow surgeons to much better detect and see remaining tumors and even hidden tumors during the surgery. Therefore, ultimately Cerenkov imaging could be used as a guide for surgical resections and be helpful for many patients in the near future.

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About 128 people will take part in this study at Memorial Sloan Kettering Cancer Center (MSK).

What are the study groups?

All study participants will get the same study imaging.

What extra tests and procedures will I have if I take part in this study?

Before you begin the main part of the study:

The study doctor will review your medical records and the results of your exams, tests, and procedures to see if it is safe for you to take part in the study. This first part of the study is called screening. Most of the screening exams, tests, and procedures are part of the usual care that you would have if you were not in a study.

The tests and procedures that will be done only for research purposes, or that may be done more often because you are participating in this study, are listed below.

- Cerenkov luminescence imaging

During the study:

- On the day of your scheduled routine FDG PET/CT, ^{68}Ga-DOTATATE or [^{18}F]-PARPi scan, post therapy scan (in the case of ^{131}I, Xofigo, or Lutathera therapy) or investigational scan, we will image you for the Cerenkov luminescence using a high sensitivity camera.
    - The Cerenkov imaging will be using a different camera than the PET scanner and will be a non-invasive procedure, meaning nothing will be injected into your body.
    - Imaging with Cerenkov will begin after your injection with FDG, ^{131}I therapy, or investigational drug.
    - You will be seated in a special chair that has an enclosure that goes around you. It will feel like you are sitting in the dark. The high sensitivity camera will take pictures of you while you are in the dark. The whole procedure will take about 20 to 60 minutes. Nothing additional will be injected into you.
- There is an optional scan using a new type of camera called, the Multi-Spectral Optoacoustic Tomography (MSOT) device. This scan is non-invasive and will take place in the same chair and room as Cerenkov imaging. It is used to double-check the experimental imaging technique. The site that is to be imaged will be stimulated with light and then ultrasound signals will be measured that provide information about the density of blood vessels and the presence of black pigments (melanin) in the tissue that could possibly affect the Cerenkov imaging. This optional scan takes about 10 minutes.

<u>Exams, Tests and/or Procedures</u>

You will have Cerenkov luminescence imaging during the main study. The procedures that will be done only for research purposes, or that may be done more often because you are participating in this study, are listed below.

- Cerenkov luminescence imaging

End-of-Treatment and follow-up visits:

The study will last only 1 day for you – the day of your Cerenkov imaging. Following the completion of your Cerenkov imaging scan, you will be considered done with the study. If you are interested, you might also complete the optional imaging using the MSOT scanner. However, if you are asked to participate in a follow-up scan a few months later, then the study will last another 1 day.

Will I receive the results of my research tests?

Neither you nor your doctor will receive the results of any tests done for research purposes during this study.

What risks can I expect from taking part in this study?

If you choose to take part in this study, there is a risk that:

- You may lose time at work, school, or at home, and you may spend more time than usual in the hospital or doctor's office
- You may be asked sensitive or private questions that you do not usually discuss

Cerenkov luminescence and optional MSOT imaging presents no additional risk to patients already receiving a radiotracer as part of their therapy and monitoring.

What are my responsibilities in this study?

If you choose to take part in this study, you will need to:

- Keep your study appointments
- Tell the study doctor about:
    - All medications and any supplements you are taking
    - Any side effects from these medications or supplements
    - Any doctor visits or hospital stays outside of this study
    - Whether you have been or are currently in another research study

Is there a conflict of interest for this study?

This study is sponsored by Memorial Sloan Kettering Cancer Center.
No conflicts of interest have been identified for either the institution or the investigator(s) in this study.

What are the costs of taking part in this study?

You will not have to pay for the Cerenkov imaging or for tests and procedures done only for research purposes, including:

- Cerenkov luminescence imaging

You and/or your health plan/insurance company will have to pay for all the other costs of treating your cancer while you are in this study. These charges include the costs of insurance co-pays and deductibles, as well as tests, procedures, or drugs that you get during the study to monitor your safety, and to prevent or manage any side effects.

Talk to your insurance provider and make sure that you understand what your insurance pays for and what it does not pay for if you take part in this clinical trial. Also find out if you need approval from your health plan before you can take part in this study.

The study doctor or nurse can help you find the right person to talk to if you are not sure which costs will be billed to you or your insurance provider.

Will I receive payment for taking part in this study?

You will not be paid for taking part in this study.

What happens if I am injured or hurt because I took part in this study?

You will get medical treatment if you are injured as a result of taking part in this study.

If you think that you have been injured as a result of taking part in this research study, tell the study doctor or the person in charge of the study as soon as possible. The name and telephone number of the person in charge of this research are listed on the first page of this consent form.

We will offer you treatment for research injuries that happen as a result of your taking part in this study. You and/or your health plan will be charged for this treatment. Medical services will be offered at the usual charge. You will be responsible for any costs not covered by your health plan/insurance company.

If you think that your injury was a result of medical error, you keep all your legal rights to receive payment for treating the injury, even though you are in a study.

Who will see my medical information?

Your privacy is very important to us, and the researchers will make every effort to protect it. Trained staff at Memorial Hospital may review your records, if necessary.

Access to your protected health information will be limited to those listed in the Research Authorization form, which is a part of the informed consent process.

Your information may be given out, if required by law. For example, some states require doctors to make a report to the state health board if they find that a participant in a research study has a contagious disease like tuberculosis. However, the researchers will do their best to make sure that any information about you that may be released will not identify you.

In the future, your information (data) may be de-identified, which means that your data will be assigned a unique code, and the list that links the code to your name will be stored separately from your data. Your de-identified information may be used for research that has not been described in this consent form, and they may be shared with another investigator for future research. You will not be asked if you agree to take part in future research studies.

If your information from this study is used in any reports or publications, your name and anything else that could identify you will not be used. It is possible that your de-identified information from this study will be shared with other researchers outside of MSK, and may be stored in public databases. All requests for data sharing will be reviewed by the study sponsor, and if individual results are included in the data, they will not contain any identifiable information about you, such as your name, address, telephone number, or social security number. Your privacy is very important to us and we use many safety procedures to protect your privacy. However, we cannot guarantee that no one will ever be able to use your information to identify you.

The study doctors have a Certificate of Confidentiality from the National Institutes of Health for this study. This gives MSK an additional way to protect sensitive information that identifies you in your

records if it is requested as part of a legal proceeding. However, MSK may still be required to share some of your medical information if required by law.

Where can I get more information?

You may visit the NCI web site at http://cancer.gov/ for more information about research studies, or for general information about cancer. You may also call the NCI Cancer Information Service to get the same information at 1-800-4-CANCER (1-800-422-6237).

A description of this clinical trial will be available on http://www.ClinicalTrials.gov, as required by U.S. law. This Web site will not include information that can identify you. At most, the Web site will include a summary of the results. You can search this Web site at any time.

You can talk to the study doctor about any questions or concerns that you may have about this study, or to report side effects or injuries. You may also contact the lead researcher listed on the first page of this consent.

For questions about your rights while you are participating in this study, call the MSK Institutional Review Board (IRB) at 212-639-7592. If you have concerns, complaints, or input on research, or if you would like more information about the informed consent process, please contact the MSK Patient Representative Department at 212-639-7202.

Optional studies:

This part of the consent form describes optional studies that you can choose to take part in. You will not get health benefits from any of these studies. The doctors leading this research hope that the results of these studies will help other people with cancer in the future.

The results of these studies will not be added to your medical records, and you and/or your study doctor will not be informed of the test results.

You will not be billed for these optional studies. You can still take part in the main study even if you do not participate in some or all of the optional studies. If you sign up for but cannot complete any of the optional studies for any reason, you can still take part in the main study.

Optional imaging study: Research scan or procedure

If you choose to take part in this optional imaging study, you will have an experimental imaging scan called Multispectral Optoacoustic Tomography (MSOT). Researchers hope that this kind of imaging scan might one day be used to assess lymph nodes to determine the presence or absence of disease in patients with melanoma. In this study, we are exploring MSOT as a way to study certain factors, such as the density of blood vessels and the presence of black pigments (melanin) in the tissue that could possibly affect the Cerenkov imaging. The entire procedure takes about 10 minutes. This imaging scan is still being tested, and researchers do not yet know how accurate or useful it may be.

If you agree to have this imaging scan, it will require safety goggles to protect your eyes during the scan. The MSOT device is an investigational device that emits low energy laser light and records ultrasound signals generated in the tissue by the laser light. There are no known side effects of the procedure, but

you are required safety goggles during the scan to protect your eyes. The imaging scan will be used only for research, and not to guide your medical care.

The normal-organ radiation doses associated with the investigational imaging procedure(s) included in this study are comparable to those from standard-of-care diagnostic imaging studies. Each year, many thousands of patients routinely undergo similar diagnostic procedures and receive comparable radiation doses without any noticeable adverse effects, either short- or long-term.

Contrast materials, also called contrast agents or contrast media, are injected into a vein in the arm to improve the pictures produced PET scans. Contrast materials are generally very safe, but adverse reactions ranging from mild to severe may occur. Serious allergic reactions or other reactions are rare. A small percentage of patients may develop a delayed allergic reaction, with a rash that can occur hours to days after the injection of the contrast agent. Most of these rashes are mild, but severe rashes may require medication; please discuss any reactions the study doctor.

Please check Yes or No. Your medical care will not be affected, no matter what you decide to do.

I agree to have the experimental imaging scan called Multispectral Optoaacoustic Tomography (MSOT)].

❑ Yes ❑ No

Research Authorization for the Use and Disclosure of Protected Health Information (PHI)

A Study of Optical Imaging with Light from Radiotracers in Cancer Patients

Federal law requires Memorial Sloan Kettering Cancer Center (MSK) to protect the privacy of information that identifies you and relates to your past, present, and future medical conditions (protected health information; PHI). We are committed to protecting the privacy of your information.

If you enroll in this research study, your protected health information will be used and shared with others, as explained below. MSK must obtain your permission before using or sharing your protected health information for research purposes. This form helps to make sure that you are informed of the ways in which your information will be used or shared in the future.

Carefully read the information below before you sign this form. By signing this form, you agree to the use and disclosure of your information for this research study.

1. What protected health information about me will be used or shared with others during this research?

- Your medical records
- Your research records, including new health information created from study-related tests, procedures, visits, and/or questionnaires
- Any health information or clinical data associated with your biospecimens, if the information or data could be reasonably used to identify you. This information or data will be shared only if you have agreed to it by signing this informed consent document.
- HIV-related information, including any information indicating that you have had an HIV-related test; or that you have HIV infection, HIV-related illness, or AIDS; or any information that could indicate that you may have been exposed to HIV. (New York State requires us to obtain your consent to use or share this information.)

2. Who will use or share my protected health information?

MSK will use and share your protected health information. People and offices that deal with research oversight, quality assurance, and/or billing will be able to use and share your protected health information, including:

- The study's Principal Investigator and Co-Principal Investigator(s): Jan Grimm, MD, Snehal Patel, MD, Nancy Lee, MD and Zhigang Zhang, MD
- Your research team at MSK, including the participating investigators, research staff, research nurses, fellows/residents, and clerical support staff
- Any healthcare personnel who provide services to you in connection with this study
- Members and staff of MSK's Institutional Review Board (IRB) and Privacy Board (PB)
- Staff of MSK's Clinical Research Administration, which oversees clinical studies, and Clinical Research Information Technology Group, which manages research databases
- Members of MSK's Data Safety Monitoring Board/Committee and the Quality Assurance Committee

3. With whom outside of MSK may my protected health information be shared?

Although all reasonable efforts will be made to maintain the confidentiality of your protected health information, it may be shared with and used by the following:

- MSK's research collaborators, business partners, subcontractors and agent(s), in the United States or in other countries, working to conduct the study, to monitor the study, or to analyze the study information for this study or for other research about the study procedure
- Other research doctors and medical centers participating in this research.
- Federal and state agencies, and other domestic or foreign government bodies, if required by law and/or necessary for oversight purposes, including:
    - Office for Human Research Protections (OHRP) of the US Department of Health and Human Services (HHS)
    - US Food and Drug Administration (FDA) and other regulatory agencies responsible for oversight of research
    - National Cancer Institute (NCI)/National Institutes of Health (NIH)

Some of the organizations that may receive your protected health information may not have to satisfy the privacy rules and requirements; they may share your information with others without your permission.

4. Why will my protected health information be used by or shared by MSK or others?

The main reasons for the use or sharing of your information include the following:

- To conduct the study, to monitor your health status, to measure the effects of the drug(s)/device(s)/procedure(s) being studied, and to determine the research results
- To ensure that the research meets legal and institutional requirements
- To develop new tests, procedures, and commercial products
- To enhance research databases, so that scientists can design better research studies to develop new therapies for patients and to gain a better understanding of disease
- To assist with MSK medical treatment, billing, or healthcare operations. For example, medical information produced by this research study will become part of your hospital medical record.

5. For how long will my protected health information be used or shared with others?

There is no set date at which your protected health information that is being used or shared for this research study will be destroyed or no longer used. The information used and created during the study may be analyzed for many years, and it is not possible to know when this analysis will be completed.

6. Statement of privacy rights:

- It is your right to refuse to sign this authorization form. If you do not sign this form, you will not be able to participate in this research study. However, if you do not sign, it will not affect your ongoing medical treatment or healthcare coverage.

- You have the right to withdraw your permission for MSK to use or share your protected health information. Please note that we will not be able to withdraw all the information about you that already has been used or shared with others to carry out research-related activities such as oversight, or information that is needed to ensure the quality of the study. To withdraw your permission, write to the study doctor listed on the first page of this consent form at: Memorial Sloan Kettering Cancer Center, 1275 York Avenue, New York, NY 10065. If you withdraw permission for us to use or share your protected health information, you will not be able to continue to participate in this research study.

- You have the right to request access to your protected health information that is being used or shared during this research and that is related to the research or to payment for the research. However, you may access this information only after the study is completed. You may have access to your medical record at any time. To request this information, please contact the study doctor whose name and telephone number are listed on the first page of this consent form. You may also ask the study doctor to correct any study-related information about you that is wrong.

Notice concerning HIV-related information

Individuals/organizations are prohibited from sharing any HIV-related information about you without your approval, unless they are permitted to do so under federal or state law. You have a right to request the list of people who may receive or use your HIV-related information without your authorization.

If you experience discrimination because of the release or disclosure of your HIV-related information, you may contact the New York State Division of Human Rights at 888-392-3644 or the New York City Commission on Human Rights at 212-306-7500. These agencies are responsible for protecting your rights.

Memorial Sloan Kettering Cancer Center
IRB Number: 17-538 A(5)
Approval date: 30-Oct-2019

Participant Informed Consent/Research Authorization for Clinical Research

Statement of professional obtaining consent
I have fully explained this clinical research study to the participant or to his/her Legally Authorized Representative (LAR). In my judgment, and in that of the participant or his/her LAR, sufficient information, including risks and benefits, was provided for the participant or his/her LAR to make an informed decision. The consent discussion will be documented in the participant's EMR.

Consenting professional must personally sign and date		
Consenting professional's signature		**Date:**
Consenting professional's name (Print)		

Participant's (or Legally Authorized Representative's [LAR's)]) statement
I have read this form that describes the clinical research study. I have also talked it over to my satisfaction with the consenting professional. By signing below, I agree to the following: (1) to voluntarily participate in this clinical research study; (2) to authorize the use and disclosure of my/the participant's protected health information (data about myself/the participant); and (3) to state that I have received a signed and dated copy of this consent form.

Participant/LAR must personally sign and date		
Participant/LAR signature		**Date:**
Participant/LAR name (Print)		
LAR relationship to participant		

Witness signature (if required)

- ❑ Witness for non-English speaking participant: I declare that I am fluent in both English and in the participant's (or LAR's) language, and I confirm that the consent discussion was appropriately interpreted for the participant (or LAR).
- ❑ Other: I confirm that the consent discussion occurred, and that the participant agreed to participate in this study by signing this form, making his/her mark, or verbally agreeing.

Name of witness: _____

Signature of witness: _____ **Date:** _____
(The name of the witness must be documented in the EMR.)

Interpreter (if required)
Name of interpreter (if present): _____
ID number (if phone interpreter): _____
(The interpreter's name or ID number must be documented in the EMR.)

The participant/Legally Authorized Representative must be provided with a **signed copy** of this form.