UNIVERSITY OF PENNSYLVANIA RESEARCH SUBJECT INFORMED CONSENT AND HIPPA AUTHORIZATION FORM

Protocol Title:	Phase I/II study of pembrolizumab in patients failing to respond to or relapsing after anti-CD19 chimeric antigen receptor modified T cell therapy for relapsed or refractory CD19+ lymphomas
Principal Investigator:	Stephen J. Schuster, M.D. Lymphoma Program, Abramson Cancer Center University of Pennsylvania Office phone: 215-614-1846
Emergency Contact:	Stephen J. Schuster, M.D. 215-662-4000, ask operator to page Dr. Schuster or the emergency oncologist on call

Why am I being asked to volunteer?

You are being invited to participate in a research study because you have a type of cancer called non-Hodgkin lymphoma and have had your cancer progress after receiving chimeric antigen receptor modified T cell therapy targeting CD19 (CART 19). Your participation is voluntary which means you can choose whether or not you want to participate. If you choose not to participate, your clinical care will not be affected and there will be no loss of benefits to which you are otherwise entitled.

Before you can make your decision about participating in this study, you will need to know what the study is about, the possible risks and benefits of being in this study, and what you will have to do in this study. This document describes the purpose, procedures, benefits, risks, discomforts, and precautions of the study. It also describes the alternative procedures that are available to you and your right to withdraw from the study at any time. The research team is going to talk to you about the research study, and they will give you a copy of this consent form to read. You may also decide to discuss it with your family,

friends, or family doctor. You may find some of the medical language difficult to understand. Please ask the study doctor and/or the research team for about this form and for more information. If you decide to participate, you will be asked to sign this form. If you decide to participate, you can later change your mind at any time and withdraw from this study.

What is the purpose of this research study?

The purpose of this study is to determine the safety and tolerability of pembrolizumab in people with lymphoma who have previously received chimeric antigen receptor modified T cells. This study will also determine how well patients with your type of lymphoma respond to pembrolizumab. Although pembrolizumab has been approved by the U.S. Food and Drug Administration (FDA) for treatment of melanoma, a type of skin cancer, the use of pembrolizumab to treat lymphoma is investigational. This means that pembrolizumab has not been approved by the FDA for treatment of your type of cancer.

Who is sponsoring this study?

Dr. Stephen Schuster, the Principal Investigator, is the physician who developed this specific protocol and is also the sponsor (entity responsible for the design, conduct, and regulatory oversight of the study). Merck Sharp & Dohme Corp. is the manufacturer of pembrolizumab and will be providing drug during this research study. Dr. Schuster and the University of Pennsylvania will receive payments to cover some research costs such as the cost of pembrolizumab, pembrolizumab infusion costs, performing research-related tests, and collecting and reporting study information.

How long will I be in the study? How many other people will be in the study?

You will come to the doctor's office to received treatment once every 3 weeks. You can continue to receive study treatment for up to 1 year as long as your lymphoma is not getting worse, you do not need a different treatment for your lymphoma, or you do not have bad side effects from pembrolizumab.

After completing treatment with pembrolizumab, you will come in for a safety follow-up visit about 30 days after your last dose of pembrolizumab or before you start a new treatment for your lymphoma. If you stop getting the study drug and

your lymphoma has not gotten worse, you will continue to come in for study follow-up visits until you start a new treatment or your disease gets worse. If you stopped receiving study drug because you had a bad side effect, you will continue to come in for follow-up visits as needed until your side effect is better or you have started a new cancer treatment. You may be observed for up to 2 years after stopping the study treatment.

You may stop participating at any time. If you decide to stop participating, we encourage you to talk to your doctor first. It is important to tell your doctor if you are considering stopping so that your doctor can discuss what follow-up care and testing will be best for you. Leaving the study will not affect your medical care.

Your doctor may stop you from participating in this study at any time if she or he believes that it is in your best interest, if you do not follow the study rules, or if the study is stopped. If new information becomes available that might affect your choice to stay in the study, your study doctor will notify you as soon as possible.

Twelve patients are expected to participate in this study. This study will only be conducted at the University of Pennsylvania Abramson Cancer Center.

What am I being asked to do?

If you meet all of the criteria for being in the study, you can participate and receive study treatment with pembrolizumab. The study is broken down into three periods: screening, treatment, and follow-up. The following procedures and treatments will take place as an outpatient if you decide to participate in the study.

Screening period and procedures:

The purpose of the screening period is to make sure that it is safe for you to participate in this study and to evaluate your lymphoma and overall health. These exams, tests, and procedures are part of regular cancer care and may be done even if you do not take part in this study. If you have had some of these tests recently, they may not need to be repeated. These need to be done within 28 days of entry onto this study, with the exception of imaging studies.

You will have the following tests and procedures to make sure you are eligible for participation in this study:

- Review of your medical history including a detailed cancer history, the medications you have taken, and your current medications
- Assessment of how able you are to get around (performance status)
- Physical examination as well as vital signs
- Blood tests, including:
    - Blood cell counts (CBC), blood chemistry tests (kidney and liver function), thyroid function tests, and blood clotting function tests.
- Urine sample for urinalysis
- Electrocardiogram (EKG) will be performed to check your heart function
- If you are a woman of reproductive potential, either a blood or urine pregnancy test will be performed
- Optional: You may be asked to provide additional tumor biopsy samples and / or blood samples during the study. These samples will be used for special studies that can be used to measure the progress of disease or the effects of treatment. This is optional. You will be asked to sign a separate authorization for these samples.
- Optional: You will also be asked to take part in optional future biomedical research. You will be given a separate informed consent to describe this research.

Treatment period:

If you have been found eligible to participate in this study and you decide to participate, you will be scheduled to start treatment on this study. Each dose of pembrolizumab is given as a 30 minute infusion into a vein. You will receive pembrolizumab every three weeks at a dose of 200mg intravenously (IV). Every patient will receive the same dose of pembrolizumab. This dose is the same dose that is approved in the United States for treatment of other types of cancer.

If you stop treatment because your lymphoma gets better, you may be able to re-start pembrolizumab treatment for 1 year if your lymphoma returns within 2 years of stopping treatment and you meet certain criteria. Your study doctor will discuss this with you.

Study tests / procedures:

You will be asked to come to the outpatient clinic every three weeks for certain tests and procedures. Some of these exams, tests, and procedures are part of your routine cancer care but may be done more often because you are in this study.

Prior to every dose of pembrolizumab, you will have the following obtained (research study visits):

- Vital signs, and a physical examination performed.
- Review of how you are feeling, if you have had any side effects, and any medications you are taking
    - Taking other drugs (including alcohol, over-the-counter medications, herbal medications, nutritional supplements, or illegal drugs) may cause additional side effects or even life threatening reactions when combined with the drugs in this study. It is important to check with your study doctor before starting any new medications.
    - It is also important to contact your study doctor or a study team member if you experience any changes in your health or any side effects between study visits

Laboratory tests and other procedures (considered standard of care):

- After first dose of pembrolizumab, performed 3 days after first dose of pembrolizumab, then weekly for 5 weeks after first dose of pembrolizumab
    - Blood counts, blood chemistries (kidney and liver function)
- Prior to every cycle of pembrolizumab, prior to pembrolizumab infusion for first 6 months of pembrolizumab (through week 21 / cycle 8):
    - Blood counts, blood chemistries (kidney and liver function), thyroid function tests,
    - If you are a woman whose last menstrual period was < 18 months ago, urine or serum pregnancy test
- After 6 months of pembrolizumab, prior to every cycle of pembrolizumab (beginning week 24 / cycle 9), prior to pembrolizumab infusion:
    - Blood counts, blood chemistries (kidney and liver function)
    - If you are a woman whose last menstrual period was < 18 months ago, urine or serum pregnancy test
- After 6 months of pembrolizumab, prior to every odd cycle of pembrolizumab (beginning week 24 / cycle 9), within 7 days prior to pembrolizumab infusion:
    - Blood counts, blood chemistries (kidney and liver function), thyroid function tests

Optional research blood draws

- These blood tests are optional and are being performed for research purposes. These would not normally be done as part of your standard care. When done, they will require about 2 tablespoons of additional blood drawn per blood draw. The maximum number of tablespoons of blood that may be taken for the duration of the study is 22 tablespoons. With the

exception of the blood draws marked with an asterisk * this blood can be drawn when your normal standard care lab work is drawn

- Prior to first dose of pembrolizumab after you have consented to participate in this study, *24 hours after first dose of pembrolizumab, *48 hours after first dose of pembrolizumab, 3 days after first dose of pembrolizumab, weekly for 3 weeks after first dose of pembrolizumab, then prior to each cycle of pembrolizumab through week 12, and at the time you withdraw from or complete study. If cytokine release syndrome occurs, this schedule of blood draws may be shifted, but the maximum amount of blood drawn for a single blood draw will not be more than 2 tablespoons. The overall total will not be more than 22 tablespoons.

Imaging studies (considered standard of care):

- Imaging with CT scan, PET / CT, or MRI as determined by your study physician to assess the status of your lymphoma will be performed at weeks 12, 24, 39, 54, 66, 78, 93, and 104 until 24 months after your first dose of pembrolizumab
- At the time of stopping pembrolizumab, you will be re-imaged unless you are withdrawing from study due to side effects, have had imaging within the last 4 weeks, or have not received pembrolizumab within 1 year

<u>Follow-up period and procedures:</u>

You may receive pembrolizumab for up to one year as long as your disease is not getting worse, you do not need a different treatment, or you do not have bad side effects. When you do stop receiving treatment on this study, you will come in for an end-of-treatment visit.

The tests and procedures at the end of treatment visit include:

- Physical examination vital signs (research visit)
- Functional status assessment and review of medications and feel of how you have been feeling (research visit)
- Blood tests for blood counts, blood chemistry (kidney and liver function), thyroid function, (standard of care)
- Imaging study (CT scan, PET/CT, or MRI) to measure your lymphoma (standard of care)

Study follow-up:

You will come in for a safety follow-up visit about 30 day after your last dose of pembrolizumab or before you start a new cancer treatment, whichever is first.

If you stop treatment due to a bad side effect, then you will be followed at least monthly or more frequently at study investigator discretion until stabilization of the side effect, resolution of the side effect, or until you start a new cancer treatment.

If you stop treatment for a reason other than lymphoma progression or due to a bad side effect, your follow-up is as follows:

- Within 12 to 24 months of the first dose of pembrolizumab, follow-up imaging occurs every 3 months until 24 months after first dose of pembrolizumab

This study does not replace or substitute for the long-term follow-up procedures or study visits related to the chimeric antigen receptor-modified T cells (CAR T-cells) or CTL019 protocol. The procedures and study visits in this protocol are separate from those related to CAR T-cells.

What are the possible risks or discomforts?

There are risks to taking part in any research study. One risk is that you may get a drug that does not help treat your disease or that makes your condition or disease worse. Another risk is that there may be side effects. This research study may involve risks or other side effects that are not known or unforeseeable and not listed below.

While on the study, you are at risk for the following side effects. Some of these side effects may be potentially serious or life-threatening, and may include death. You should discuss these with the study doctor. If you experience side effects from this treatment, your study doctor may delay or skip a dose of the study drug, or ask you to stop study treatment. Everyone taking part in the study will be watched carefully for any side effects. Your doctor may also give you drugs to help lessen these side effects. Many side effects go away shortly after the treatment is stopped, but in some cases side effects can be serious, long lasting or permanent. You should talk to your study doctor about any side effects that you have while taking part in this study.

Information about pembrolizumab:

Pembrolizumab is approved in the USA and some other countries to treat several different cancers, but may not be approved to treat your type of cancer.

Pembrolizumab works by helping your immune system to fight your cancer.

However, pembrolizumab can also cause your immune system to attack normal organs and tissues in your body and can affect the way they work, which can result in side effects. These side effects may become serious (i.e. cause hospitalization or be life-threatening), may result in death, and/or may occur after you stop taking pembrolizumab.

What side effects could pembrolizumab cause?

Risk of IV administration of pembrolizumab

An IV line will be used to administer pembrolizumab through a vein in your arm. The use of an IV line may cause discomfort, irritation, mild bruising, bleeding, leakage of drug solution, and rarely infection, nausea, and lightheadedness. Because pembrolizumab is an antibody, there is the possibility that you may experience an acute infusion reaction. These are side effects that develop during or immediately after the administration of pembrolizumab. Side effects may include:

Blood pressure changes (increase or decrease)
Cough
Dizziness
Fast heart beat
Feeling cold
Feeling that your tongue is swelling or your airway is closing and you have trouble breathing
Fever
Headache
Joint pains
Muscle pains
Nausea
Rash, hives, or itching
Shortness of breath
Sweating
Tiredness
Vomiting

VERY COMMON, out of 100 people who receive pembrolizumab, 20 or more people may have the following:

- Itching of the skin
- Loose or watery stools
- Cough

COMMON, out of 100 people who receive pembrolizumab, at least 5 but less than 20 people may have the following:

- Joint Pain
- Fever
- Back pain
- Rash
- Pain in your belly
- Loss of skin color
- Not enough thyroid hormone so you may feel tired, gain weight, feel cold, have infrequent or hard stools.
- Low level of salt in the blood that may cause you to feel tired, confused, headache, muscle cramps, or sick to your stomach

UNCOMMON, out of 100 people who receive pembrolizumab, at least 1 but less than 5 people may have the following:

- Too much thyroid hormone so you may feel anxious, angry, have trouble sleeping, feel weak, tremble, sweat, feel tired, have loose and watery stools
- Inflammation of the lungs so you may feel short of breath and cough.
- Inflammation of the bowels / gut that may cause severe pain in your belly with loose or watery stools, and black, tarry, sticky stools or stools with blood or mucus.
- Infusion reaction, where you may feel dizzy or faint (have low blood pressure), feel flushed, get a rash, have a fever, feel short of breath, or sick to your stomach at the time of receiving your infusion (IV) or just after, or pain at the site of infusion.
- Inflammation of the skin so you may have peeling of the skin, itchiness, and/or skin redness. The skin inflammation (i.e. peeling, itching, and redness) could also be widespread throughout your body. More severe skin reactions may involve the inside of your mouth, the surface of your eye and genital areas, and/or may cause the top layer of your skin to peel from all over your body which can cause severe infection.

RARE, out of 100 people who receive pembrolizumab, less than 1 person may have the following:

- Inflammation of the liver that may make you feel sick to your stomach and vomit, feel like not eating, feel tired, have a mild fever, have pain in the right side of your belly, yellow eyes and skin, and dark urine
- Inflammation of the pituitary gland (a gland in the head) which may cause you to feel sick to your stomach or have headaches, changes in your behavior, double vision, few to no menstrual cycles, weakness, vomiting, dizziness, or fainting.
- Adrenal glands (glands on top of the kidneys) that may not make enough hormone, which could cause tiredness, weight loss, muscle weakness, feeling faint, joint, muscle and stomach aches, nausea, vomiting, loose or

watery stools, fever, salt craving, rapid heart rate, and sometimes darkening of the skin like a suntan
- Inflammation of the kidneys so you may pass less urine, have cloudy or bloody urine, swelling and low back pain
- Inflammation of the muscles so you may feel weak or pain in the muscles
- Inflammation of the pancreas (a gland in your abdomen that controls sugar levels) so you may have severe pain in the top part of your belly that may move to your back, feel sick to your stomach, and have vomiting that gets worse when you eat.
- Type 1 diabetes, a condition that can cause too much sugar in your blood, feeling thirstier than usual, frequent urination, and weight loss. You are likely to need regular insulin shots.
- Inflammation of the eye so you may have eye redness, blurred vision, sensitivity to light, eye pain, see floaters, or have headaches
- Inflammation of the nerves that may cause pain, weakness or tingling in your hands and feet, and may spread to your legs, arms and upper body leading to severe muscle weakness and possible paralysis
- Inflammation of the middle layer of your heart wall that may cause your heart to have difficulty pumping blood throughout your body, which can cause chest pain, shortness of breath and swelling of the legs. You may experience a fast or irregular heartbeat that may cause dizziness or fainting.
- Inflammation of the thyroid gland, an organ that makes and stores thyroid hormones. This condition may lead to change in your heart rate, blood pressure, body temperature, and the rate at which food is converted to energy.
- A condition that may make you feel weak and tired and might have drooping of the eyelids, blurred or double vision, difficulty swallowing, slurred speech, weakness in your arms and legs, or difficulty breathing.
- The formation of small clusters of immune cells (called granulomas) in parts of your body such as your lymph nodes, eyes, skin, or lungs
- Inflammation of the brain with confusion and fever. This may also include: disorientation, memory problems, seizures (fits), changes in personality and behavior, difficulty speaking, weakness or loss of movement in some parts of your body, and loss of consciousness.

If you have had an allogeneic stem cell transplant (a procedure in which a person receives blood-forming stem cells from a donor), you may experience graft versus host disease (GvHD), which may include diarrhea, skin rashes, and liver damage, **after receiving pembrolizumab.** Sometimes this condition can lead to death.

Patients treated with pembrolizumab **BEFORE** going on to receive an allogeneic stem cell transplant (a procedure in which a person receives blood-forming stem

cells from a donor), should inform their transplant physicians that they have received pembrolizumab in the past.
In patients with any hematologic malignancy (cancers of the blood like Hodgkin lymphoma, multiple myeloma): there is a potential for an increased risk of severe complications following allogeneic stem cell transplant in patients who previously received pembrolizumab **BEFORE** an allogeneic stem cell transplant.
Reports of clotting of blood within the liver and severe graft versus host disease (which can include skin, liver and gastrointestinal symptoms), including death, have been received for patients who received pembrolizumab **BEFORE** an allogeneic stem cell transplant after pembrolizumab therapy.

If you have had a solid organ transplant (for example, if you have received a kidney or a heart transplant), you may experience rejection of the transplanted organ. Your doctor will monitor you and should tell you what signs and symptoms you should report depending on the type of organ transplant that you have had.

Other serious side effects from pembrolizumab include:

- Swelling of the tumor causing localized pressure (rarely this might lead to death)
- Pseudoprogression: symptoms of progression in the absence of actual disease progression (rarely this might lead to death)

Additionally, since pembrolizumab was approved, the following side effects have been reported by people who received pembrolizumab. These side effects were voluntarily reported from a group of people of unknown size. It is not possible to estimate the frequency of this side effect:

- Inflammation of the joints, which may include joint pain, stiffness, and/or swelling

Because pembrolizumab has never been studied in people who have received chimeric antigen receptor-modified T cells (CART cells), there may be additional risks related to interactions between pembrolizumab and CART cells.

Other study-related risks:

Risks of blood draws:
Blood samples will be taken for tests throughout this study. The amount of blood to be taken by these blood draws is very small, and may be associated with discomfort and/or bruising at the site where the needle is inserted; and less commonly, fainting, the formation of a small blood clot or swelling of the vein and surrounding tissue, bleeding, and infection from the injection site.

You will have about 5 tablespoons of blood drawn at each visit for routine blood tests. If you participate in the optional research blood draws, you may also have

up to 2 tablespoons of blood drawn at some visits for research blood tests that would not be done if you were not taking part in this study.

Imaging studies:
During your participation in this study, you will undergo routine radiology tests to assess your disease. These can include CT, PET/CT, or MRI scans. These types of scans and the frequency at which they are being performed are considered part of your routine cancer care.

CT and PET/CT scans involve exposure to radiation. The amount of radiation exposure you may receive from these tests is considered small and will not adversely affect the treatment of your disease. You may be exposed to more radiation because you are taking part in the study. At the doses you will receive, it is very likely that you will see no effects at all.

The known risks associated with a Magnetic Resonance Imaging (MRI) are minimal. The procedure uses radio waves and a magnetic field to take pictures. The greatest risk of having an MRI is the chance of metal objects flying through the air toward the magnet and hitting you. To reduce this risk, all people involved with the study are instructed to remove all metal from their clothing and all metal objects from their pocket. You must tell your study doctor if you have any metal plates or clips in your body. No metal objects are allowed to be brought into the magnet room at any time. Metal objects inside your body can affect the test results and could lead to injury. Because the magnetic field of the MRI scanner attracts metal, these studies will not be performed on anyone with a pacemaker or any non-removable metallic foreign objects in their body. If you have any such object on your body, you will not receive the scan. You may feel claustrophobic (fear of being closed in) or anxious. You may experience some discomfort and fatigue from lying in a confined space. There are no known effects from exposure to the magnetic fields.

The use of IV contrast or dye in these scans is preferred, but not required. Your doctor will determine if the use of IV contrast or dye is ok for you based on routine clinical care. It is important to inform your study doctor if you have had an allergic reaction to IV contrast material or dye in the past. IV contrast material (dye) is often associated with feelings of discomfort, warmth, or pain. Serious, life-threatening, and fatal reactions have been associated with the administration of iodine containing contrast agents. If a more severe allergic reaction such as irregularity of the heartbeat, drop in blood pressure, or difficulty breathing, were to occur, the radiologist and other hospital specialists would initiate treatment immediately. Complications such as heart attack or death have been documented although they are extremely rare. Acute kidney failure is also one of these rare side effects. If you have a history of kidney disease, please inform the study staff. In addition, some mild side effects such as nausea, vomiting, headache, rash or hives, dizziness, diarrhea, and taste alteration have been documented when IV contrast is administered.

Risks of electrocardiogram (EKG):
The electrocardiogram (EKG) is a noninvasive test used to measure the electrical activity of the heart. By positioning leads (electrical sensing devices) on the body in set locations, information about many heart conditions can be learned by looking for patterns on the EKG. You may develop a slight rash or skin irritation in the locations where these leads (electrodes) were placed on your skin. There are no other known risks associated with an EKG.

Reproductive risks:

Because of the effects of this drug/device, there could be serious harm to unborn children or children who are breast-feeding. These effects could also harm the mother. It is also possible that harmful side effects that are not yet known could happen to both the mother and unborn or breast-feeding child. If you are currently pregnant, it is important that you inform the investigator because you will not be able participate in the study. If you are currently breast-feeding, you may not continue breast-feeding while on this study.

Female Participants: If you are able to become pregnant, you will be given a serum or urine pregnancy test before entry into the study. You must agree to not have sex (abstinence) or to use 2 birth control methods during the course of the study and for at least 4 months after your final study treatment. The two birth control methods can be either 2 barrier methods or 1 barrier method plus 1 hormonal method to prevent pregnancy. Barrier methods include diaphragm, condom, copper intrauterine device (IUD), sponge, or spermicide; hormonal methods include hormonal contraceptives, such as the birth control pill. Your study doctor must approve your form of birth control. Ask your study doctor about the contraceptive methods that are available and which might be the best for you.

Even when you use an approved contraceptive method, there is always a small risk that you could still become pregnant. If you do become pregnant during the course of this study, you must discontinue study treatment, tell the investigator immediately, and consult an obstetrician or maternal-fetal specialist.

You may be considered postmenopausal if you are greater than 45 years old and have not had a menstrual cycle for more than 18 months.

If you become pregnant during the study or within 4 months of completing study treatment with pembrolizumab, you must notify the study doctor right away. The study drug will be stopped and you will be taken out of the study. You will be

contacted monthly until the pregnancy has been completed or terminated. The data collected will be obtained by your study doctor, who may collect the data from your gynecological physicians via self-report and medical records review. The data collected will include data as to your health during pregnancy, any complications during your pregnancy, and the status of your child when it is born. The study doctor will report the pregnancy outcome to the study Sponsor.

Male Participants: You should not become pregnant or father a child while on this study or for 4 months after your last dose of pembrolizumab. If your partner has the potential to become pregnant, you must agree to not have sex (abstinence) or to use 2 birth control methods during the course of the study and for at least 4 months after your final study treatment with pembrolizumab. The two birth control methods can be either 2 barrier methods or 1 barrier method plus 1 hormonal method to prevent pregnancy. Barrier methods include diaphragm, condom, copper intrauterine device (IUD), sponge, or spermicide; hormonal methods include hormonal contraceptives, such as the birth control pill. Your study doctor must approve your form of birth control. Ask your study doctor about the contraceptive methods that are available and which might be the best for you.

You should also inform your partner of the potential harm to an unborn child. If your partner becomes pregnant during the study or within 4 months of you completing study treatment with pembrolizumab, you must notify the study doctor right away. Your partner will be contacted monthly until the pregnancy has been completed or terminated. The data collected will be obtained by your study doctor, who may collect the data from your partner's gynecological physicians via self-report and medical records review. The data collected will include data as to your partner's health during pregnancy, any complications during the pregnancy, and the status of your child when it is born. The study doctor will report the pregnancy outcome to the study Sponsor.

If you are male and your partner is pregnant, you must agree to use a condom and no other method of birth control is required for your pregnant partner.

What if new information becomes available about the study?

During the course of this study, we may find more information that could be important to you. This includes information that, once learned, might cause you to change your mind about being in the study. If we discover or learn new information about the study drug that could affect your decision to stay in the study, we will notify you as soon as possible if such information becomes available.

What are the possible benefits of the study?

Taking part in this study may or may not make your health better. It is possible that your disease and/or health may worsen as a result of participating in this study.

What other choices do I have if I do not participate?

Your participation in this study is entirely voluntary. Other possible treatments include:

- Getting treatment or care for your cancer without being in a study
- Taking part in another clinical trial
- Not receiving any treatment at this time
- Getting symptom-focused or comfort care. This is also called palliative care. This type of care helps reduce pain, tiredness, appetite problems, and other problems caused by cancer. It does not treat the cancer directly, but instead tries to improve how you feel. Comfort care tries to keep you as active and comfortable as possible.

Talk to your doctor about your choices before you decide if you will take part in this study. It is completely your decision whether or not you want to be part of this study. If you decide to participate in this study you can change your mind at any time and withdraw from the study.

Will I be paid for being in this study?

You will not be paid for participation in this study.

Will I have to pay for anything?

The study drug, pembrolizumab, is not approved for non-Hodgkin lymphoma and its cost and the cost of pembrolizumab infusion will be covered by the study. The cost of study visits related to this clinical trial as well as blood work that is considered non-standard of care (e.g., blood collected for research purposes) will be covered by the study.

You and/or your insurance provider will be responsible for standard tests, exams, or procedures that would be done even if you were not in this study. You are responsible for any deductibles or applicable co-pays for routine office visits, scans and blood work. Some health plans will not pay the costs of tests, exams, and procedures for people taking part in studies. Please talk to your doctor and study team about putting you in touch with a financial counselor to determine exactly what the deductible and co-pay will be for you; this is highly variable depending on your type of insurance.

For more information on clinical trials and insurance coverage, you can visit the National Cancer Institute's Website at: http://cancer.gov/clinicaltrials/understanding/insurance-coverage. You can print a copy of the "Clinical Trials and Insurance Coverage" information from this Website.

Another way to get the information is to call 1-800-4-CANCER (1-800-422-6237) and ask them to send you a free copy.

What happens if I am injured from being in the study?

For all side effects, injuries or illnesses that occur while you are taking part in this research study

If you have a medical emergency during your participation on this study, you should go to the nearest emergency room. You should contact the Principal Investigator or Emergency contact listed on page one of this form. You may also contact your own doctor, or seek treatment outside of the University of Pennsylvania. Be sure to tell the doctor or his/her staff that you are in a research study being conducted at the University of Pennsylvania. Ask them to call the telephone numbers on the first page of this consent form for further instructions or information about your care.

The University of Pennsylvania will offer you the care needed to treat side effects and/or injuries that occur while you are taking part in this research. We may bill your insurance company or other third parties, if appropriate, for the costs of the care you get for the injury, but you may also be responsible for some of them. There are no plans for the University of Pennsylvania to pay you or give you other compensation for the injury.

If you think you have been injured as a result of taking part in this research study, contact Dr. Schuster, the principal investigator of the research study as soon as possible. His contact information, including phone number, is listed in the consent form.

Research-related injuries or illnesses that occur while you are taking part in this research study

In the event of a bodily injury or illness directly resulting from the study drug or a medical procedure required for this study, Merck Sharp & Dohme Corp. will cover the cost of all reasonable, unreimbursed, and necessary medical expenses to treat this injury or illness. Merck Sharp & Dohme Corp. will not provide payment for injuries unrelated to the study drug, or which are a result of your underlying disease or any pre-existing medical conditions. If you have an illness or injury during this research trial that is not directly related to your participation in this

study, you and/or your insurance will be responsible for the cost of the medical care of that illness or injury.

You may receive bills for injuries/illnesses that occur during your participation in this study. If you have questions about these bills and whether or not they are covered by the research study, please bring copies of these bills to a member of the study team and they will be able to answer your questions.

Financial compensation for such things as disability or discomfort due to injury is not available.

You will not lose any of your legal rights when you sign this form.

When is the Study over? Can I leave the Study before it ends?

You can receive treatment on this study for up to 1 year and be followed on this study for up to a total of two years after first dose of pembrolizumab as long as your disease is not getting worse, you do not need a different treatment, or you do not have bad side effects.

This study is expected to end after all participants have completed all visits, and all information has been collected. This study may also be stopped at any time by your physician, the study Sponsor, or the Food and Drug Administration (FDA) without your consent because:

- The Primary Investigator feels it is necessary for your health or safety. Such an action would not require your consent, but you will be informed if such a decision is made and the reason for this decision.
- You have not followed study instructions.
- The Sponsor, the study Principal Investigator, or the Food and Drug Administration (FDA) has decided to stop the study.

If you are removed from this research study, your study doctor will explain to you why you were removed.

If you decide to participate, you are free to leave the study at anytime. Leaving this study will not interfere with your future care.

Your participation in this study is completely voluntary. Leaving the study, or choosing not to take part, with not affect your future treatment or your relationship with your study doctor, and will not result in any penalty or loss of

benefits to which you are entitled. If you leave the study for any reason, the study doctor may ask you to have some end-of-study tests completed.

It is important to tell the study doctor if you are thinking about stopping so any risks from the study drug can be evaluated by your doctor. Another reason to tell your doctor that you are thinking about stopping is to discuss what follow-up care and testing could be most helpful for you. Should you choose to discontinue your treatment, you may be asked by the study doctor to have a final visit to complete some of the end of study tests/procedures. In addition, information may continue to be obtained from your medical record for study follow-up purposes. You will also be asked to continue to participate in follow-up phone calls after you stop taking the study drug.

Who can see or use my information? How will my personal information be protected?

If you decide to participate in this study, the study doctor and staff will collect medical and personal information about you as part of completing the study. We will do our best to make sure that the personal information in your medical record will be kept private. However, we cannot guarantee total privacy. Your personal information may be given out if allowed by law. If information from this study is published or presented at scientific meetings, your name and other personal information will not be used. This study is being overseen by the Food and Drug Administration (FDA); therefore they may review your research records. Please refer to the information below which explains more specifically how your personal information will be protected. If you do not want to allow these uses, you should not participate in this study. Information identifying you will be kept confidential as described below.

<u>What personal health information is collected and used in this study, and might also be disclosed?</u>

The following personal health information will be collected and used for the purposes of this study:

- Name, address, telephone number, gender, date of birth
- The history and diagnosis of your disease
- Specific information about the treatments you received, including previous treatment(s) you may have had
- Information about other medical conditions that may affect your treatment
- Medical data including laboratory test results, health status, tumor measurements, CT scans, MRIs, and pathology results

- Information on side effects (adverse events) you may experience, and how these were treated
- Long-term information about your general health status and the status of your disease. This may include information from other health care providers
- Data that may be related to tissue samples that may be collected from you
- Numbers or codes that will identify you, such as your medical record number
- Information related to study visits and other tests/procedures performed while you are participating on this study.

While collected as part of this study by your study doctor and study team, identifying information (including your name, address, telephone number, medical record number, or any number/codes that will directly identify you) will be kept as confidential as possible and will not be routinely disclosed outside of the University of Pennsylvania.

You will be assigned a unique subject registration number upon enrollment. This number and your initials will be used to identify you throughout the course of this study so that your identity is protected. The key to this code (which links your name back to the personal health information collected during this study) will be stored in a secure area and only the University of Pennsylvania study team will have access to this code. However, some of the study data (e.g. date of birth) could be used in combination with other information, in order to identify you. If you have questions about the specific information that will be released, you should ask your study doctor.

As part of standard study screening procedures, we will test for human immunodeficiency virus (HIV), hepatitis B, and hepatitis C. If you test positive for HIV, hepatitis B, or hepatitis C, by law we have to report the infection to the City of Philadelphia Health Department/PA Department of Health. We would report your name, gender, racial/ethnic background, and the month and year you were born.

The reason that HIV is reported to the Department of Health is to keep track of how many people in the U.S. have HIV infection. It is also to make sure that states get enough money from the federal government to support the medical care of people living with HIV. The Health Department does not share the

names of HIV infected people with anyone else. It removes all personal identifiers, such as your name, before giving information on the number of HIV infections to the federal government.

Why is your personal health information being used?

Your personal contact information is important for the research team to contact you during the study. Your personal health information and results of tests and procedures are being collected as part of this research study, and will be used to conduct and oversee this research study, and to help guide your medical treatment.

Electronic Medical Records and Research Results

What is an Electronic Medical Record?

An Electronic Medical Record (EMR) is an electronic version of the record of your care within a health system. An EMR is simply a computerized version of a paper medical record.

If you are receiving care or have received care within the University of Pennsylvania Health System (UPHS) (outpatient or inpatient) and are participating in a University of Pennsylvania research study, results of research-related procedures (i.e. laboratory tests, imaging studies and clinical procedures) may be placed in your existing EMR maintained by UPHS. .

Once placed in your EMR, these results are accessible to appropriate UPHS workforce members that are not part of the research team. Information within your EMR may also be shared with others who are determined by UPHS to be appropriate to have access to your EMR (e.g. health insurance company, disability provider, etc).

Which of our personnel may use or disclose your personal health information?
The following individuals may use or disclose your personal health information for this research study:

- The Principal Investigator and the Investigator's study team
- Authorized members of the workforce of the UPHS and the School of Medicine, and University of Pennsylvania support offices, who may need to access your information in the performance of their duties (for example: for research oversight and monitoring, to provide treatment as part of this study or as part of your routine care, to manage accounting or billing matters, etc.). This includes members of the Institutional Review Board (IRB), an Ethics Committee at the University of Pennsylvania who are

responsible for reviewing and overseeing research studies to ensure that they are safe and being well managed.

Who, outside of UPHS and the School of Medicine, might receive your personal health information?

As part of the study, the Principal Investigator, the study team and others listed above, may disclose your study-related records, including the results of the research study tests and procedures, to those listed below. This study data may be processed and transmitted using secure computer systems. In all disclosures outside of the University of Pennsylvania Health System and School of Medicine, you will not be identified by name, medical record number, address, telephone number, or any other direct personal identifier unless disclosure of the direct identifier is required by law. In records and information disclosed outside of the University of Pennsylvania Health System and School of Medicine, you will be assigned a unique code number.

Your original medical records also may be reviewed by the sponsor of this study or its designated representatives, the Institutional Review Board overseeing this study, and any of the regulatory or safety oversight organizations outlined below. They may review these records for the purpose of checking data collected for the study, to make sure the study is being done properly, and to analyze the results of the study.

Individuals or organizations responsible for supporting the study:

- Merck Sharp & Dohme Corp., the study sponsor, and its authorized agents

Regulatory and safety oversight organizations

- The U.S. Food and Drug Administration (FDA)
- Other regulatory agencies and/or their designated representatives
- Public Health agencies and other government agencies (including non-U.S.) as authorized or required by law

Once your personal health information is disclosed to others outside of UPHS or the School of Medicine, it may no longer be covered by United States federal privacy protection regulations and your information may be re-disclosed without your permission.

The Principal Investigator or study staff will inform you if there are any additions to the list above during your active participation in the trial. Any additions will be subject to University of Pennsylvania procedures developed to protect your privacy.

How long may UPHS and the School of Medicine be able to use or disclose your personal health information?

Your authorization for use of your personal health information for this specific study does not expire. If you sign this form, we will collect your health information until the end of the research study. We may collect some information from your medical records even after you finish taking part in this study or after your death. We will keep all of the information forever in case we need to look at it again. We will protect this information and keep it confidential.

Your information may be held in a research database. However, UPHS and the School of Medicine may not re-use or re-disclose information collected in this study for a purpose other than this study unless:

- You have given written authorization to do so
- The University of Pennsylvania's Institutional Review Board grants permission after ensuring that appropriate privacy safeguards are in place
- As permitted by law

The data from this study may be published or used for teaching purposes, however you will not be personally identified in any publication. Your identity will remain confidential unless disclosure is required by law.

What if you decide not to give permission to use and give out your health information?
Then you will not be able to be in this research study.

Can you change your mind?
You have the right to withdraw your permission for the use of your personal health information, but if you do so, you must stop taking part in this study. You must do so in writing to the Principal Investigator at the address on the first page. Even if you withdraw your permission, your personal health information that was collected before we received your written request may still be used and disclosed, as necessary for the study. If you withdraw your permission to use your personal health information, you will also be withdrawn from the research study and no new information will be collected. However, even if you do withdraw your permission to use the data about you, we are required by the FDA and other national regulatory authorities to record anything that relates to the safety of the investigational drug under study.

Will you be able to access your research records?
You have the right to see and get a copy of your medical records kept by the University of Pennsylvania. However, you will not be able to review or receive some of your records related to the study until after the entire study has been completed. When the study is over, you may write to the study doctor to ask to see or copy all of your medical information that was collected during the study. You also have the right to say how your medical information may be used, and to have any incorrect data about yourself updated or corrected.

A description of this clinical trial will be available on http://www.clinicaltrials.gov, as required by US Law. This website will not include information that can identify you. At most, the website will include a summary of the results. You can search this website at any time.

By signing this document you are permitting the UPHS and the School of Medicine to use and disclose personal health information collected about you for research purposes as described above.

Who can I call with questions, complaints or if I'm concerned about my rights as a research subject?

If you have questions, concerns or complaints regarding your participation in this research study or if you have any questions about your rights as a research subject, you should speak with the Principal Investigator listed on page one of this form. If a member of the research team cannot be reached or you want to talk to someone other than those working on the study, you may contact the Office of Regulatory Affairs with any question, concerns or complaints at the University of Pennsylvania by calling (215) 898-2614.

When you sign this form, you are agreeing to take part in this research study. This means that you have read the consent form, your questions have been answered, and you have decided to volunteer. Your signature also means that you are permitting the University of Pennsylvania to use your personal health information collected about you for research purposes within our institution. You are also allowing the University of Pennsylvania to disclose that personal health information to outside organizations or people involved with the operations of this study.

A copy of this consent form will be given to you.

Name of Subject (Please Print)	Signature of Subject	Date

Name of Person Obtaining Consent (Please Print)	Signature	Date

For subjects unable to give authorization, the authorization is given by the following authorized subject representative:

Authorized subject representative **[print]**	Authorized subject representative Signature	Date

Provide a brief description of above person authority to serve as the subject's authorized representative:_____