What is photopheresis?

Photopheresis (ECP) is a type of medical therapy that can be used in treating patients with problems associated with cutaneous (skin) T-cell lymphoma (CTCL) such as mycosis fungoides (MF) or Sezary syndrome. ECP is also used to treat conditions including graft-versus-host disease (GVHD) and organ transplant rejection. It was developed by THERAKOS®, a Johnson & Johnson company. Photopheresis treatments at Stanford Medical Center are given at the Cancer Center in the Apheresis Area.

How does photopheresis work?

The process requires the patient’s blood to be temporarily drawn intravenously and then the white-blood cells (WBCs) are separated before the rest of the blood is returned to the patient. The WBCs are then mixed with a liquid medication called psoralen (UVADEX®), which makes the T-lymphocytes more sensitive to ultraviolet (UV) light, more specifically the long wavelength form called UVA. Afterwards, the WBCs are exposed to the UVA which promotes death of the diseased cells. Then the treated WBCs are returned to the patient. The mechanism of photopheresis is still unclear, and there are several theories on possible ways it works. One such theory states that after the treated WBCs are returned to the body, the immune system recognizes the dying abnormal cells and begins to produce healthy lymphocytes to fight against those cells.

How long does the treatment take?

Photopheresis is usually a two-day process, so the treatment can be done twice within 36 hours, or else the therapy is not as effective. However, patients are not required to stay overnight at the hospital. Patients who live locally commute daily to receive their treatment. A brochure with a list of affordable, nearby hotels and motels is provided for patients who live far away and need a place to stay overnight. The treatment itself takes about three to four hours each day. The frequency of how often the patient needs to come in varies depending on their condition. Patients can usually drive home after their treatment, however on the very
first day of treatments patients are advised to bring someone who could drive just in case they experience significant side effects.

**Does photopheresis have side effects?**

The advantage of photopheresis is that the side effects are minimal including a temporary low-grade fever, slight nausea, increased redness of skin 6 to 8 hours after the treatment, and dizziness. The severity of these side effects is highly variable depending on the individual. Because the WBCs have been treated by the UVADEX®, there may be some sensitivity to light. Also, the ECP nurses and the doctor should keep a careful watch on the patient's blood pressure and blood count since the patient’s blood volume is being shifted during the treatment and a small amount of red blood cell components are lost in the extracorporeal kit. ECP treatment does not lead to suppression of the patient’s immune system nor does it adversely affect the patient’s organs such as kidneys, liver, heart, and lungs.

**How should I prepare to receive photopheresis?**

On the first of the two day treatment days, the nurse may do laboratory studies. If there is any need for the patient to have blood drawn, please ask the lab technician to avoid drawing blood from the veins at the bend of the arm. These veins are larger and firmer and are required for photopheresis treatments.

To help the patient tolerate the treatment better, water pills or any high blood pressure medications should be avoided before photopheresis treatments, but they may be taken after the treatment on the same day. The patient should drink eight glasses of water per day for 2 days before the treatment and limit their fluid intake on the mornings prior to treatment, especially any coffee or caffeinated drinks. This is due to the fact that patients will not be able to use the restroom during the three to four hour treatment. The patient may eat before photopheresis treatment, but should avoid eating foods that are high in fat (such as bacon, eggs, hamburgers, etc) as they make the therapy less effective. It is recommended that the patient brings ultraviolet eye shields or sunglasses to the treatment because of sensitivity to light. Patients will be provided with a television with basic cable but they may bring in any reading material. The patient is also advised to wear comfortable clothes during the treatment and that are protective from the sunlight for the next twenty-four hours. The use of sunblock (with SPF 15 at least) is recommended as well.

Patients receiving photopheresis should exercise their arms daily. Heavy lifting should be avoided for at least four hours with the treatment arm and the bandage should be kept in place for four hours as well.