Melflufen is a new type of cancer therapy, a “peptide-conjugated alkylator” that rapidly delivers a toxic drug payload into myeloma cells, resulting in myeloma cell death.

**Trial Description:**
This international trial will enroll approximately 450 patients at 115 treatment centers who received 2–4 prior lines of therapy and are refractory to (did not respond to) treatment with Revlimid® (lenalidomide) in their last line of therapy (as demonstrated by disease progression on or within 60 days of completion of their last dose of lenalidomide) within at least 18 months before joining the study.

Patients will be randomly selected by a computer to be in one of two treatment groups, an experimental arm (Arm A) and a control arm (Arm B). There will be approximately 225 patients in each arm of the study. Patients and the healthcare team will know to which arm each patient has been assigned.

**Trial Objectives:**
The primary objective of this trial is to compare the progression-free survival (from the time of randomization to disease progression) of melflufen plus dexamethasone (Arm A) versus Pomalyst® (pomalidomide) plus dexamethasone (Arm B) as assessed by an Independent Review Committee. Secondary objectives include evaluating the following in both study arms:

- To assess and compare the overall response rate (ORR, the percentage of patients having at least a 50% reduction in monoclonal protein).
- To assess and compare the duration of response (DOR, the time from best response to disease progression) in Arm A versus Arm B.
- To assess and compare overall survival in Arm A versus Arm B.
- To assess and compare treatment safety and tolerability in Arm A versus Arm B.

**Trial Design:**
- Patients in Arm A will receive melflufen 40 mg by intravenous infusion (into a vein, or IV) on Day 1 and dexamethasone 40 mg by mouth on Days 1, 8, 15, and 22 of each 28-day cycle.
- Patients in Arm B will receive pomalidomide 4 mg by mouth daily on Days 1 to 21 and dexamethasone 40 mg by mouth on Days 1, 8, 15, and 22 of each 28-day cycle.
- Patients who are 75 years of age or older will have a reduced dose of dexamethasone of 20 mg on Days 1, 8, 15, and 22 whether they are in Arm A or Arm B.
Duration of Treatment:
Patients may receive treatment until disease progression, unacceptable toxicity (side effects), or the patient or treating doctor determines it is not in the patient’s best interest to continue. If there is no disease progression, patients will be followed for 24 months after the end of treatment.

Chief Inclusion Criteria:
• A prior diagnosis of myeloma with documented disease progression requiring further treatment at the time of screening.
• Measurable disease, as shown by any of the following:
  • Serum monoclonal protein ≥ 0.5 g/dL
  • Urine monoclonal protein ≥ 200 mg/24 hours
  • Serum free light chain protein ≥ 10 mg/dL AND abnormal serum kappa to lambda free light chain ratio
• Received 2–4 lines of prior therapy, including lenalidomide and a proteasome inhibitor (Velcade® [bortezomib], Kyprolis® [carfilzomib], or Ninlaro® [ixazomib]) either sequentially or in the same line of therapy, and relapsed and/or refractory to both the last line of therapy and to at least 10 mg of lenalidomide taken within 18 months prior to randomization.
• Females of child-bearing potential must have a negative serum or urine pregnancy test prior to the start of treatment and must agree to ongoing pregnancy testing. All patients must be willing to comply with all requirements of the USA Pomalyst Risk Evaluation and Mitigation Strategy (REMS) program or the Pomalyst Pregnancy Prevention Plan.
• Adequate heart function as assessed by 12-lead electrocardiogram (ECG).
• Meet certain minimum requirements for blood cell counts and liver and kidney function.
• Must be able to take medications to prevent blood clots.
• Must have, or be willing to have an acceptable central catheter (peripherally inserted central catheter [PICC-line] or central venous catheter). Catheter insertion only required if randomized to Arm A.

Chief Exclusion Criteria:
• Disease that never responded with at least a 25% drop in monoclonal protein to any prior therapy (primary refractory).
• Evidence of mucosal or internal bleeding or refractory to platelet transfusion.
• Any medical condition that would impose excessive risk to the patient or would adversely affect his/her participation in the study.
• Prior exposure to pomalidomide.
• Known intolerance of immunomodulatory drugs (Thalomid® [thalidomide], lenalidomide, or pomalidomide).
• Known active infection within 14 days of randomization.
• Other malignancy diagnosed or requiring treatment within the past 3 years (except for adequately treated non-melanoma skin cancer, carcinoma in situ of the cervix or breast, and low-risk prostate cancer).
Chief Exclusion Criteria (continued):
- Pregnant or breast-feeding females.
- Any psychiatric illness or addiction that may hinder or confuse compliance or follow-up evaluation.
- Known human immunodeficiency virus, or active hepatitis B or hepatitis C viral infection.
- Concurrent symptomatic amyloidosis or plasma cell leukemia.
- POEMS syndrome.
- Having had anti-myeloma therapy within 2–12 weeks prior to randomization (required duration off therapy depends on the type of treatment).
- Prior allogeneic stem cell transplant with active graft-versus-host disease.
- Prior major surgical procedure or radiation therapy within 4 weeks of randomization.
- Known intolerance to steroid therapy.

Locations Enrolling Patients and Contact Information:
Contact trials@oncopeptides.se for specific site information and for updates.

United States, Arizona
US17: Tucson, AZ 85711
United States, California
US03: Berkeley, California 94704
US01: Fresno, California 93710
United States, Florida
US11: Gainesville, FL 32610
United States, Idaho
US16: Boise, ID, 83712
United States, Illinois
US22: Skokie, IL 60077
United States, Kentucky
US24: Louisville, KY 40207
United States, Massachusetts
US13: Boston, MA 02215
United States, Mississippi
US27: Hattiesburg, MI 39401
United States, Missouri
US26: Kansas City, MO 64111
United States, New York
US04: East Setauket, NY 11733
US05: New York, NY 10532
United States, North Carolina
US09: Greenville, NC 27834
US21: Salisbury, NC 28144 (not yet recruiting)
United States, Ohio
US07: Canton, OH 44718
United States, Pennsylvania
US06: Philadelphia, PA 19107
United States, South Carolina
US08: Charleston, SC 29406
United States, Texas
US28: Dallas, TX 75230
US15: Fort Sam Houston, TX 78234
US18: Temple, TX 76504
United States, Washington
US23: Spokane, WA 99208