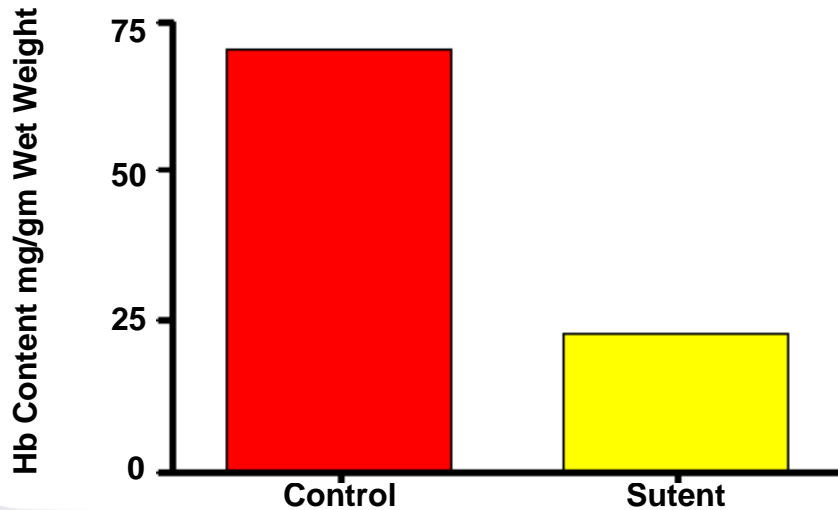


# ANGIOGENESIS

NEW

## The Better Matrigel Plug Assay

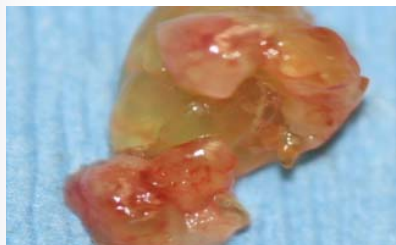


Matrigel Angiogenic Factors (VEGF/FGFb/Heparin)

Mann-Whitney Rank Sum Test, P value < 0.001

MIR has developed new methods for performing matrigel plug assays that perform better than traditional methods

Control



Sutent PO QDx7 @ 40mg/kg



**MIR**

Innovation in Drug  
Evaluation

MIR Preclinical Services



# Angiogenesis at MIR

As tumors grow they have increased requirements for oxygen and nutrients. To induce the formation of new blood vessels to meet this need (angiogenesis), tumors secrete a number of growth factors such as VEGF and FGFb. The blood vessels that form provide the added oxygen and nutrients tumors need for continuous growth as well as an avenue for the metastatic spread of the tumor. Because of this, angiogenesis has become a prime target in the fight against cancer.

## Improved Matrigel Assay

Matrigel is a gelatinous material derived from mouse tumor cells that is commonly used in vitro and in vivo as a substrate for cells. When pro-angiogenic agents are added to the matrigel and it is injected into the subcutaneous space of an animal, new blood vessels invade the matrigel, to form vessels in tumors. This is the basis of an assay referred to as the "matrigel plug" assay. The matrigel can be harvested and the new vessel formation in the plug can be assessed (hemoglobin content is commonly used).

The difficulty with the traditional matrigel plug assay is that the matrigel disperses easily in the subcutaneous tissue and does not form a tight solid mass. MIR has developed methods that minimize this dispersion.

## Histology

MIR offers histology and immunohistochemistry services to determine vessel formation in tumors using endothelial cell markers such as CD31 or Factor 8. Micro-vessels can then be quantified by counting the number of vessels present within a defined frame of view over a number of different slices throughout the depth of the tumor. Other methods are also under development.

## Dynamic Contrast Enhanced (DCE) MRI

DCE MRI is a method for the quantification of the effect of anti-angiogenic or vascular disrupting agents. DCE can be used to assess anti-angiogenesis activity in preclinical studies and can be directly translated as a biomarker in clinical trials. DCE involves imaging of gadolinium uptake into the interstitial space for the quantification of vascular permeability, vascular surface area and blood flow. Color overlay vascular maps showing the permeability of tissues based on the uptake and transport of contrast agent can be used to visualize vascular response.

## MIR:

If you would like more information on this, or any other MIR service, please feel free to contact the company using the information given below. MIR can also set up a webinar conference to discuss services, technology, capabilities, strategies and protocol design. Let MIR help you meet your preclinical research needs.