Cases #412 #459 and #460

Threonyl-tRNA Synthetase (TARS)– A Novel Target and Biomarker for Metastatic Prostate and Ovarian Cancer

The aminoacyl-tRNA synthetases (AARS) family catalyzes the attachment of amino acids to tRNAs, but its members have now been found to play significant roles in a number of unique diseases, including autoimmune disorders and cancers. At UVM, researchers have identified a novel pro-angiogenic role for one member of the AARS family, TARS, that is upregulated in metastatic prostate and ovarian cancers. The researchers have since shown that TARS itself is a pro-angiogentic chemokine-like protein and, in cell models, efficiently stimulates new blood vessel formation. This, together with TARS overexpression, suggests that the pro-angiogenic function of TARS may have a role in metastasis in prostate and ovarian cancer. Initial in vitro studies with anti-TARS borrielidin derived compounds further supports this mechanism and provide small molecule lead and cancer compounds for further optimization.

Applications:

- Diagnosis and monitoring of prostate and /or ovarian cancer.
- TARS inhibitors as anti-angiogenic cancer therapeutics.
- Increasing vascularization in cardiovascular and wound healing.

Advantages:

- Novel biomarker of metastesis.
- Novel anti-angiogeneic target and therapeutics for advanced cancers.
- Novel pro-angiogenic cytokine-e4(t)2in0 Td (-)Tj4.9230.002 Tw 0.251 0 Td [(f)-1.3(o)-3.8(r)-1.3(ad)-3.8(v)