

**Technology**

Use of macrophage migration inhibitory factor for diagnosis of urological conditions

**Inventor**

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**Key Features**

- Broad applicability across a number of urological conditions
- Non-invasive
- Could be used alone or in conjunction with other diagnostic methods

**Stage of Development**

Reduced to practice with successful demonstration in both in-vitro and animal models

**Keywords**

Diagnostic  
- Urology  
- Inflammation  
- Oncology

**Patent Status**

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## Macrophage Migration Inhibitory Factor: A Novel Diagnostic for Urological Inflammatory Disease and Cancer (VA Reference No. 03-079)

*Novel method for diagnosis and/or prognosis of urological conditions including inflammation and cancer*

**Technology**

The Department of Veterans Affairs has developed a method of detection and quantification of macrophage migration inhibitory factor (MIF) in the bladder and urine for the diagnosis of urological inflammatory disease, including chronic pelvic pain and its associated inflammatory conditions such as non-bacterial prostatitis and interstitial cystitis. Furthermore, the technology has the potential for diagnosis and/or prognosis of bladder cancer and prostate cancer.

**Description**

MIF is a pro-inflammatory cytokine that may play a role in several disease states such as arthritis, sepsis, Crohn's disease, allograft rejection, asthma, and prostate cancer. MIF may be implicated in the early stages of bladder inflammation. In addition, changes are observed in the levels of MIF and cox-2 in the central and peripheral nervous system tissues that innervate the bladder and other pelvic organs. Therefore, in addition to the local inflammatory effect, MIF may also be involved in neurogenically mediated changes at both central and peripheral nervous system sites following visceral inflammation.

MIF may also be implicated in both bladder cancer and prostate cancer. The VA has demonstrated that bladder adenocarcinoma tumor cell line, HT1376, has the ability to synthesize MIF. In addition, it has been demonstrated that the expression of MIF is altered in metastatic prostate cancer when compared to normal tissue.

**Competitive Advantage**

There are a number of deficiencies in the current methods of diagnosis for urological conditions. Bladder cancer diagnostics are only approved for the diagnosis of recurrent disease. In addition, there is not presently a diagnostic assay for identifying urological inflammatory disease. Furthermore, the current methods of prostate cancer diagnosis are not specific resulting in missed diagnoses. There are also limited genetic methods available for diagnosis and prevention of prostate cancer.

This invention:

- Has a broad range of applicability across a number of urological conditions.
- Provides a non-invasive diagnostic test.
- Could be used alone or in conjunction with commonly used diagnostic methods.

**Status**

The Department of Veterans Affairs is looking for a partner for further development and commercialization of this technology through a license, and the VA inventors are available to collaborate with interested companies through a Cooperative Research and Development Agreement (CRADA).