

Technology: Endothelin antagonist for the treatment of focal segmental glomerulosclerosis and HIV-associated nephropathy

Morehouse School of Medicine (MSM) Case No.: IP-0019

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Abstract:

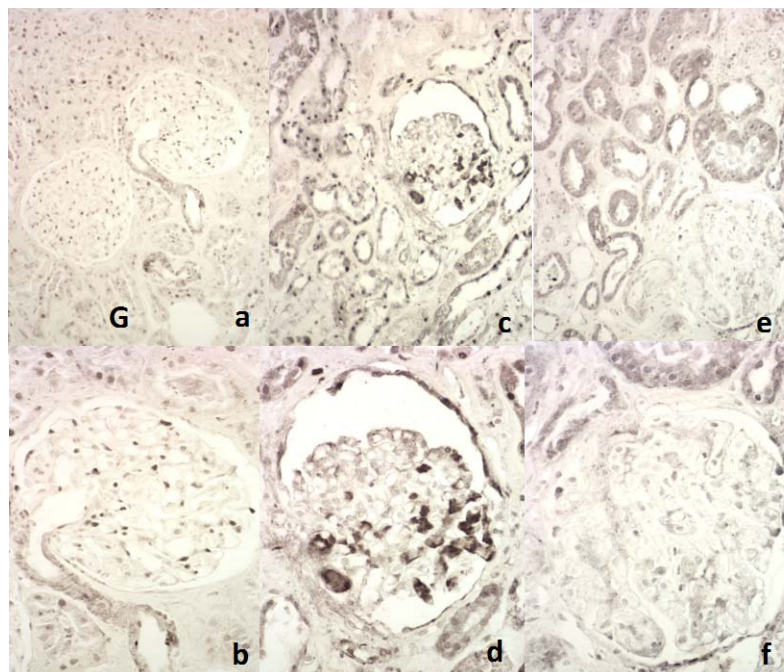
HIV associated nephropathy (HIVAN) affects predominantly African Americans with HIV-1 infection and is the most common cause of renal failure in HIV-positive patients. The pathological features of HIVAN include collapsing focal segmental glomerulosclerosis (FSGS) with microcystic tubular dilation and interstitial inflammation. Highly active antiretroviral therapy (HAART) appears to limit the progression to end-stage renal disease (ESRD), but is not successful in all cases. Long-term use of anti-retrovirals can be toxic to the kidneys. Moreover, untreated HIV-positive individuals that develop HIVAN can progress rapidly to ESRD within 6 months. Until now, there were no effective pharmacological agents to treat HIVAN and reduce the progression to ESRD. This asset is a reformulation of FDA-approved Endothelin-1A antagonist(s) and/or generic angiotensin-converting enzyme (ACE) inhibitors for treating and preventing HIVAN in susceptible patients.

Applications:

- Treatment of HIV associated nephropathy (HIVAN)

Value Proposition:

- Reduction of the progression to end-stage renal disease using FDA-approved Endothelin antagonists



ET-1 immunohistochemistry - Immunohistochemical localization of ET-1 in kidney tissue from donor nephrectomies compared with renal biopsies from patients with primary (idiopathic) focal segmental glomerulosclerosis (FSGS) or HIV infection (a, b). Immunoperoxidase staining for ET-1 is negative in kidney tissue from a donor nephrectomy. (c, d) A kidney biopsy from a patient with FSGS exhibits increased content of ET-1 in parietal epithelium lining Bowman's space (larger arrow), as well as visceral epithelial cells overlying a segmental scar (smaller arrow). Surrounding tubules also show increased cytoplasmic expression of ET-1. (e, f) A kidney biopsy from a patient infected with HIV continues to exhibit increased expression of ET-1 in tubules, similar to FSGS. In contrast to FSGS, however, glomerular epithelial cells evidence only trace amounts of the protein. [Original magnification of Figs. a, c and e = 100x. Original magnification of Figs. b, d and f = 200x. G = glomerulus].