

**TVP1022 - a Novel Cardioprotective Drug for the Treatment of Congestive Heart Failure (CHF)**

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**Background:**

TVP1022 is the optical S-isomer of the newly developed, FDA-approved, anti-Parkinson drug rasagiline, which was recently described as “a disease modifying drug” due to its anti-apoptotic and neuro-protective effects. Since: (1) TVP1022 is neuro-protective, and (2) cardiomyocytes and neurons share many similar features, we hypothesized that TVP1022 (which has minimal MAO inhibition), can be cardio-protective.

**Materials and Methods:**

The therapeutic efficacy of TVP1022 was demonstrated in 2 animal models of cardiac pathologies:

- **Congestive Heart Failure:**
  - Volume overload model induced by the placement of a fistula between the abdominal aorta and the inferior vena cava in rats.
  - Doxorubicin-induced cardio-toxicity in rats and mice.

**Results:**

- **CHF:**
  - Volume overload - Pre-treatment with TVP1022 **attenuated** the decrease in fractional shortening, remodeling, the hypertrophic response, the increase in BNP levels and the fibrosis.
  - Doxorubicin-induced cardiotoxicity - TVP1022 **attenuated** doxorubicin-induced apoptosis and the decline in diastolic and systolic functions by **50%**.

**Conclusion:**

The ability of TVP1022 to attenuate cardiac damage induced by different pathological insults, by means of its unique mechanisms of action, being anti-apoptotic, anti-ischemic as well as anti-hypertrophic, render this molecule a potential **cardio-protective drug for CHF patients.**