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# METHODS TO TREAT VASODILATORY SEPTIC SHOCK

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**Background:** Vasodilatory shock, a reduction in effective blood circulation, occurs when endogenous vasoconstrictor mechanisms fail as a result of an often lethal combination of severe infections. Sepsis, as one of the causes, alone affects 1 million people resulting in more than 258,000 deaths each year in the US. The current practice to treat vasodilatory shock relies on administration of large doses of vasoconstricting agonists (e.g. norepinephrine and vasopressin). Progressive hyposensitivity to these agonists, however, poses a significant clinical problem that can lead to refractory shock with a high mortality. Researchers from Washington University in St. Louis have developed an alternative strategy to reverse vasodilatory shock.

**Technology Description:** Phosphorylation of myosin light chain, by myosin light chain kinase, initiates vascular contraction while dephosphorylation, by myosin light chain phosphatase, results in vascular relaxation. Hence, inhibitors of myosin phosphatase (e.g. calyculin A) hamper dephosphorylation, thereby restoring responsiveness to endogenous vasoconstrictors (e.g. norepinephrine) as has been shown in animal studies.

**Key Advantages:**

- Proven ability to reverse vasodilatory shock in an animal model
- Alternative therapy to offset vasodilatory effects
- Applicable to refractory shock treatment and routine vasodilatory shock treatment
- Opportunity to exploit an underexplored vasodilatory pathway

**Patents -** Methods of treating vasodilatory shock (U.S. Patent No. 7,855,174 and 9,629,827)