The Living Fossil (Horseshoe crab)

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Editors,
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Factors involving in the clot formation of horseshoe crab blood

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Abstract
The blood of the horseshoe crab has been an area of interest because of its blue colour, which is
due to a copper based oxygen acceptor (hemocyanin) rather than the iron based receptor
(hemoglobin) seen in mammals and other animals. Although the respiratory function of
hemocyanin is similar to that of hemoglobin, there are a significant number of differences in its
molecular structure and mechanism. When horseshoe crab hemolymph comes into contact with
Gram-negative bacteria or Lipopolysaccharide (LPS), the amebocytes begin to degranulate, and
hemolymph coagulation is initiated by the granule components. There are number of factors
involving in accomplishing the formation of clot in horseshoe crabs circulatory system. This
paper was attempted to address the importance and role of various factors involving in the clot
formation of horseshoe crab blood during bacterial endotoxin invation.

Key words: clotting factors, horseshoe crabs, hemocyanin, lipopolysaccharide, bacterial
endotoxin.

Introduction
The scientific exploration on horseshoe crab blood was started due to the limitation in the
detection of bacterial pyrogenicity using rabbit as a test animal. For most of the 20th century, the
Rabbit Pyrogen Test (RPT) was the standard method for testing the quality of injectable drugs,