

工程与应用

## 考虑病毒突变的乙肝病毒感染动力学模型研究

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**摘要** 研究乙肝病毒 (HBV) 感染自然病程的特点, 是探索乙肝病毒致病机理的关键所在。基于London-Blumberg模型, 采用偏微分方程方法对乙肝病毒动力学进行建模。通过计算机仿真, 研究了当人初次感染乙肝病毒时, 在自然病程特点下人体内的各项指标的动力学行为。通过此模型分析比较了不同年龄段人群在受到乙肝病毒感染后所呈现出的不同自然病程特点。最后, 在此模型基础上建立了药物治疗的动力学, 分析比较了不同药物治疗乙肝病毒的效果。

**关键词** [乙肝感染](#) [动力学](#) [自然病程特点](#) [药物治疗](#)

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## Dynamical model for hepatitis B virus considering virus mutation

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### Abstract

The study for natural character of infection by the Hepatitis B Virus (HBV) is the main factor of knowing pathogenesis. Here, the method of differential equation is used to model the evolution of HBV based on London-Blumberg model. By computer simulation, the dynamics of all parameters are studied under the natural character of infection by HBV when people are firstly infected by virus. The natural character of different ages of people infected by virus is analysed and compared. The simulation results show that the model is powerful in simulating the process of HBV infection cell, and can be used to simulate the curative effects of different medication.

**Key words** [HBV infection](#) [dynamics](#) [natural character](#) [medication](#)

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