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巨噬细胞中与识别抗原有关的RNA巨噬细胞中与识别抗原有关的RNA

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摘要 用3H-尿苷离体掺入实验研究兔腹腔巨噬细胞在识别抗原过程中的 RNA合成。当用不同种类的红细胞膜作抗原时，无论是自体兔膜还是人、羊、异体兔的膜，都促进3H-尿苷掺入巨噬细胞RNA，但程度上有所不同（异体兔>羊、人>自体兔。）然而，如果用利宝平或放线菌素D预先完全抑制巨噬细胞正常转录之后，再用不同种类的红细胞刺激，结果发现自体膜不再能刺激巨噬细胞的RNA合成，而其他种类的膜都在一定程度上恢复巨噬细胞的RNA合成。用2.5%聚丙烯酰胺-0.5%琼脂糖凝胶电泳分析巨噬细胞在抗原刺激下新合成的RNA，结果表明上述几种红细胞膜都促进所有种类的RNA合成，但当用利福平完全抑制正常转录时，外来抗原只促进4-5 S RNA 的合成。Poly (U)-Sepharose亲和层析表明这种4-5 S R N A带有poly(A)。根据这些结果，提出一个关于巨噬细胞识别抗原过程的工作假设。

关键词

分类号

Synthesis and Characterization of RNA during AntigenRecognition in Macrophage

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Abstract

RNA synthesis during antigen recognition in rabbit peritoneal macrophage was investigated by incorporation of 3H-uridine in vitro.When the red cell membranes, (RCM) from different sorrces were used as antigens, toth autogenic and other RCMs from sheep,human, and allogenic rabbit stimulated the incorporation of 3H-uridine into RNA, but in different extents (allogenic rabbit>sheep, human>autogenic rabbit).When the normal transcription in macrophage was completely inhibited by rifampicin or actinomycin D, however,the effect of autogenic RCM was obviously different from those of the other RCMs:RNA synthesis in macrophage could not be stimulated by autogenic RCM anylonger, while the incorporation of 3H-uridine into RNA was still stimulated by other RCMs in the presence of rifampicin of actinomycin D.

In order to characterize the RNA synthesized in antigen recognition, the synthesized 3H-RNA was fractionated by the 2.5% polyacrylamide-0.5% agarose gel electrophoresis.It was shown that all membranes mentioned above stimulated the synthesis of several kinds of RNA,on the other hand, when normal transcription was completely inhibited by rifampicin, foreign antigen only stimulated the synthesis of 4—5S RNA. The results of affinity chromatograph on poly(U)-Sepharose suggested that the 4—5S RNA carries poly(A).

According to this results,it is suggested a work hypothesis about the process of antigen recognition in macrophage, which may be divided into two steps: primary and secondary recognition.The RNA synthesis related to antigen recognition in secondary step could be distionguished from those related to phagocytosis in primary step by rifampicin inhibition. The special 4—5S RNA synthesized in secondary recognition may be catalyzed by a RNA polymerase which is DNA polymerase which is DNA-independent but could not be inhibited by high concentration of rifampicin. The enzyme might present in a zymogen form and may only be activated by stimulation of foreign antigen.

Key words

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