

论著

日本血吸虫可溶性虫卵抗原经两种免疫途径获得的鸡卵黄抗体IgY动态观察

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摘要

目的 对比两种免疫途径产生抗日本血吸虫可溶性虫卵抗原 (SEA) 的特异性IgY抗体水平动态变化。方法 7只新西兰兔感染日本血吸虫尾蚴 (1 500/只) 42 d后解剖收集虫卵, 制备SEA。将SEA分别经皮下和静脉注射免疫健康海蓝蛋鸡 (3只/组), 首次和第2次免疫间隔2周, 之后每次间隔4周, 共免疫5次, 50 μg/ (只·次)。取两组免疫前, 以及首次免疫后2~18周生产的鸡蛋, 用水稀释法粗提IgY, ELISA检测每2周IgY的动态变化。IgY纯化试剂盒 (EGGstract IgY Purification System) 纯化静脉组首次免疫后8~18周的IgY, 紫外吸收法检测抗体浓度, 琼脂糖双扩散法和ELISA检测IgY峰值水平的抗体效价, 十二烷基磺酸钠?羧基聚丙烯酰胺凝胶电泳 (SDS-PAGE) 和蛋白质印迹 (Western blotting) 分析比较免疫前后抗体特异性。结果 静脉组和皮下组分别在首次免疫后8和12周IgY抗体水平达高峰, A₄₉₂值分别为1.28和0.78, 静脉组IgY水平至18周仍维持较高水平, 皮下组抗体水平达到峰值后逐渐下降。纯化后IgY浓度约为6.5~9.0 mg/ml, 琼脂糖双扩散法和ELISA测得静脉注射组峰值水平抗体效价分别为1:16和1:51 200。经SDS-PAGE和Western blotting分析, 纯化后的IgY在相对分子质量 (M_r) 25 000和68 000处各有一条清晰条带, 且免疫后IgY可与SEA发生特异性反应。结论 静脉注射法比皮下注射法能获得更高水平的鸡抗日本血吸虫SEA特异性IgY抗体, 且纯化后的IgY抗体具有较好的特异性。

关键词 [日本血吸虫; 可溶性虫卵抗原; IgY; 免疫](#)

分类号

Dynamic Observation of Chicken Egg Yolk Antibodies against Soluble Egg Antigen of *Schistosoma japonicum* Obtained by Two Immunization Routes

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Abstract

Objective To observe the dynamic changes of the specific chicken egg yolk antibodies (IgY) against soluble egg antigens (SEA) of *Schistosoma japonicum* by two immunization routes. Methods Seven New Zealand rabbits were infected with *S. japonicum* cercariae (1 500 per rabbit). After 42 days the rabbits were sacrificed to collect eggs and prepare SEA. Two groups each with 3 healthy hens were intravenously and subcutaneously immunized with 50 μg SEA, respectively. All hens received five immunizations by the same dose of antigen, with 2-week interval for the first two doses, and 4-week interval for the rest doses. Hen eggs were collected at pre-immunization and every two weeks after the first immunization. Crude IgY was extracted from egg yolk by water dilution method, and were analyzed by SEA-based ELISA, then purified by using EGGstract IgY Purification System from the 8th to 18th week after the first immunization. IgY concentration was determined by A₂₆₀/A₂₈₀ ratio.

The expression of IgY was detected by agarose double diffusion method and SEA-based ELISA. The characteristics of IgY was analyzed by SDS-PAGE and Western blotting. Results The titer of IgY reached a peak at the 8th week in the intravenous group (A₄₉₂=1.28) and at the 12th week in the subcutaneous group (A₄₉₂=0.78), respectively, and maintained at a high level in the intravenous group until the 18th week after the first immunization. The concentration of purified IgY was about 6.5-9.0 mg/ml. Agarose double diffusion method and SEA-based ELISA demonstrated that the peak titer of IgY in the intravenous group was 1:16 and 1:51 200, respectively. SDS-PAGE demonstrated that IgY contained two major protein bands (M_r25 000 and 68 000). IgY purified from immunized egg yolk specifically reacted with SEA. Conclusion

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The intravenous method is superior than the subcutaneous injection method in obtaining a high level of egg yolk antibodies against SEA of *Schistosoma japonicum*, and the purified IgY shows better specificity.

Key words [Schistosoma japonicum](#); [Soluble egg antigen](#); [IgY](#); [Immunization](#)

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