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Identity of the Viruses Causing "Mad Itch" and Pseudorabies.

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In experiments already reported[1] it was shown that while "mad itch" virus regularly caused rapidly fatal infections in cattle, cats, rabbits, mice and guinea-pigs, it produced in swine, when injected subcutaneously, only a temporary illness. Serum from swine that had recovered from this infection neutralized both the "mad itch" and pseudorabies viruses* as was shown by injection of mixtures of viruses and serum into susceptible guinea pigs. These facts indicated that the 2 viruses were closely related if not identical, but their relationship could not be determined conclusively at that time because serum of animals immune to pseudorabies was not available.

Schmiedhoffer[2] has reported that pseudorabies virus was without effect when injected into swine although von Ratz[3] observed the disease occurring naturally in wild swine. In our hands the pseudorabies virus has produced a febrile disease of a few days' duration. After recovery the serum from such swine neutralizes the virus.

With serum available from swine that have recovered from pseudorabies and with serum from swine recovered from "mad itch", cross neutralization tests to determine the relationship of the 2 viruses have been made and are given in Table I.

The data show that serum from swine recovered from either "mad itch" or pseudorabies neutralizes both viruses. The conclusion to be drawn, therefore, is that the inciting agents of "mad itch" and pseudorabies are immunologically identical. The differences in the experimental disease produced by the 2 viruses[1] must then be considered only as variations induced by 2 strains of the same virus. In recognition of the identity of "mad itch" as occurring in this country and pseudorabies as occurring in Hungary and other European countries, in any future publications the "mad itch" virus will be designated as Pseudorabies Virus (Iowa Strain).

[1] Shope, R. E., *J. Exp. Med.*, 1931, **54**, 233.

* The "mad itch" virus was obtained from a cow in Iowa.[1] The pseudorabies virus was kindly furnished by Professor Alădar Aujeszky, of the Hungarian Veterinary School in Budapest.

[2] Schmiedhoffer, J., *Z. Infektionskrankh. Haustiere*, 1910, **8**, 383.

[3] von Ratz, S., *Z. Infektionskrankh. Haustiere*, 1914, **15**, 99.

TABLE I.

Cross Neutralization of the Pseudorabies and "Mad Itch" Viruses.

Subcutaneous injection of 1.5 cc. containing 1 cc. of virus (10% suspension of virus-containing rabbit brain)	0.5 cc. serum† swine	Guinea Pig No.	Result
Pseudorabies	673—normal	506	Died—71 hr.—control
"	" "	507	" 80 " "
"	810 "	514	" 68 " "
"	" "	517	" 66 " "
"	" "	543	" 63 " "
"	1235—pseudorabies convalescent	500	No illness
"	" " "	501	" "
"	" " "	502	" "
"	" " "	503	" "
"	1185 " "	494	" "
"	" " "	495	" "
"	772—"mad itch" convalescent	522	" "
"	" " " "	524	" "
"	" " " "	542	" "
"	" " " "	546	" "
"Mad itch"	673—normal	504	Died—73 hr.—control
" "	" "	505	" 90 " "
" "	810 "	515	" 105 " "
" "	" "	516	" 72 " "
" "	" "	547	" 77 " "
" "	1235—pseudorabies convalescent	496	No illness
" "	" " "	497	" "
" "	" " "	498	" "
" "	" " "	499	" "
" "	1185 " "	526	" "
" "	" " "	527	" "
" "	772—"mad itch" convalescent	518	" "
" "	" " " "	521	" "
" "	" " " "	544	" "
" "	" " " "	545	" "

† The serum and virus were mixed and stored in the refrigerator over night (17 hours) prior to inoculation into the test guinea pigs.

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Herpes Antiviral Substances; Distribution in Various Age Groups and Apparent Absence in Individuals Susceptible to Poliomyelitis.

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That the virus of herpes simplex of human origin is capable of producing neurotropic changes in the rabbit and certain other rodents was shown by Doerr[1] and others. Since the work of Zinsser

[1] Doerr, R., *Z. f. Haut- u. Geschl.*, 1924, **18**, 27.