

transally, it is doubtful that this was due to the relatively lower, but considerable, virus dosage the animals received. It suggests rather some modification of the virulence of the virus to the species by its serial propagation in a foreign host. One point of concern was the fact that 2 of 20 animals, originating from premises supposedly free of IBR, were found to have appreciable levels of neutralizing antibodies.

In view of its rapid destructive action once adapted to HeLa cells, one cannot help but speculate on what the effect of IBR virus could be on other human cancer cells *in vitro* or *in vivo*.

Summary. Following an essentially alternating passage method between HeLa and bovine embryo kidney cultures, infectious bovine rhinotracheitis (IBR) virus was adapted to HeLa cells and propagated through 26 serial transfers. The adapted virus rapidly destroyed HeLa cells and yielded, when measured in bovine cultures, virus titers comparable to those of bovine kidney-grown virus. It was specifically neutralized by an immune guinea-pig serum prepared against bovine-

grown virus and, although of somewhat lesser virulence to calves than the parent virus, it induced a comparable level of neutralizing antibodies in all animals and afforded them a solid protection against a virulent challenge.

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Oxidase Activity in Blood Serum from Different Species. (23256)

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During a study of demyelinating disease in lambs from ewes feeding on seaweeds a question regarding distribution of serum copper in the ewes arose. This disease in lambs resembles swayback as it is known in Great Britain and is accompanied by low blood copper in the ewes(1). Since human serum contains a copper containing protein, ceruloplasmin, with oxidase activity, it was considered interesting in this connection to learn about a corresponding oxidase activity in sera from sheep. According to Bearn and Kunkel(2) all oxidase activity of human blood serum is confined to ceruloplasmin. Therefore oxidase activity of unfractionated blood sera from a few species towards para-phenylenediamine was determined, to investigate rela-

tive content of ceruloplasmin in these sera.

Method. The method employed was the same as used by Ravin(3). Each sample for determination was a buffered solution containing 0.1 ml serum and 1 ml 0.5% p-phenylenediamine in a total volume of 10.1 ml. The optical density of this solution for 1 cm light path was determined in a Beckman Spectrophotometer at 530 mμ after incubating 1 hour at 37°C. Each sample was tested with and without Sodium Azide and the difference in optical density calculated.

Results. The results are presented in Table I.

Average oxidase activity in the tested human sera is thus significantly higher than in sera from the other tested species.

TABLE I.

	No. of sera tested	Avg optical densities at 530 mμ, 1 cm light path	Stand. error of mean
Humans	27	.695	.026
Sheep	31	.265	.016
Cattle	15	.210	.010
Dogs	11	.131	.008
Guinea pigs	10	.112	.006

The tested sera from dogs and guinea pigs are significantly lower in oxidase activity than sera from cattle and sheep.

If Beer's law is valid for the coloured substance, or approximately so, these results mean that the tested unfractionated human sera exhibit approximately 2.6 times more oxidase activity than sera from sheep. This ratio is still higher when human sera are compared with sera from the other tested animals.

In connection with the observed difference in oxidase activity between various animal species, it is interesting to recall that a certain relation is believed to exist between ceru-

loplasmin (oxidase) content of human serum and the functioning of the brain. No effort has been made to identify the oxidase from the animal sera as ceruloplasmin.

A comparison of the copper content in sera from the tested species, or various fractions of these, has not yet been done.

Summary. Comparative determinations of oxidase activity of blood sera from humans and a few animal species were carried out. The substrate used was p-phenylenediamine. Human sera were found to contain significantly more oxidase activity than sera from sheep and cattle. Sera from sheep and cattle were found to be significantly higher in oxidase activity than sera from dogs and guinea pigs.

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Influence of Chlorpromazine and Cortisone on Protein Metabolism of Rats. (23257)

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Chlorpromazine increases survival time, survival rate, and tolerance to hypotension, of dogs in hemorrhagic shock(1). The protection afforded the stressed intact animal, as well as the beneficial effects obtained in a wide variety of clinical conditions (asthma, arthritis) which are also improved by ACTH or by adrenal steroids, suggest the possibility that chlorpromazine might alter the hypothalamic-pituitary response to stressful situations. However, enhanced survival by treatment with chlorpromazine of adrenalectomized animals exposed to bacterial endotoxin has also been reported(2). An inhibition of secretion of ACTH in response to various noxious stimuli in chlorpromazine-treated animals has been reported by Aron *et al.*(3,

4), but this observation could not be confirmed by other investigators(5). Rather, this drug has increased adrenal production of steroids in the intact, but not in the hypophysectomized animal(6). Chlorpromazine does not alter adrenal responsiveness to ACTH as measured by changes in ascorbic acid levels of the adrenal glands of hypophysectomized rats(7).

In view of the observations that chlorpromazine does not alter hypothalamic-pituitary response to noxious stimuli, nor response of the adrenal to ACTH, it was thought possible that this drug could alter peripherally, the response of the body to the adrenal cortical steroids. It was therefore decided to investigate whether the protein catabolic effect of