only with the essentially whole homogenate incubating under oxygen. Such RNAse-treated homogenates are devoid of ATP and evidence has been presented that the factor of liver extract that prevents or reverses RNAse inhibition is concerned with the maintenance of an adequate level of ATP. It would appear that the liver extract factor is involved either as a cofactor in the generation of ATP or as an inhibitor of ATP hydrolysis.

Summary. The influence of ATP on biosynthesis of cholesterol and precursors from mevalonic acid has been studied with relatively crude (200 xg supernatant) and more refined (9000 xg supernatant) fractions of rat liver homogenate under aerobic and anaerobic conditions following preincubation with or without added ribonuclease. Mevalonic acid incorporation occurred under conditions favorable for oxidative phosphorylation or under conditions where the ATPase of tissue fragments had been removed by centrifugation (9000 xg). Ribonuclease inhibition of mevalonic acid utilization occurred only under oxygen and in the presence of tissue fragments relatively rich in ATPase.

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Received September 21, 1959. P.S.E.B.M., 1959, v102.

Serum, Bile and Liver Total Cholesterol of Laboratory Animals, Toads and Frogs.* (25312)

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There is much information in the literature on serum and tissue cholesterol concentrations of laboratory animals. Values reported vary a great deal. The differences can be attributed in part to the various methods of extraction and estimation procedures used. During the past few years a saponification-extraction procedure has been used in this laboratory to determine serum and tissue total cholesterol. The color is developed with the ferric chloride reaction. This procedure is adapted to determine an amount as small as a few μg of total cholesterol per sample(1). This communication reports serum, bile, and liver total cholesterol levels of 9 species of laboratory animals most commonly used in this laboratory and of 2 species of toads and 2 species of frogs.

Material and methods. The animal and amphibian species, body weight, sex, source of blood, and anesthetics used are compiled in Table I. All animals were from our animal stock house. They were kept on ordinary laboratory chow made by Purina for the respective species. The toads and frogs had been kept in the refrigerator. Bile samples were collected from the gall bladder of monkeys, dogs, cats, rabbits, guinea pigs, toads and frogs. Hepatic bile was collected from rats through cannulation of the common bile duct with polyethylene tubing. Total cholesterol was determined on an aliquot of undiluted serum, bile, and liver digested with potassium hydroxide(1). Samples were usually collected and kept in the refrigerator and determinations were made within a few days. Storage of samples in the refrigerator for a few days did not seem to affect total cholesterol concentrations.

Results. The serum, bile, and liver total cholesterol concentrations are summarized in Table II. There is no direct relationship between total cholesterol concentrations and body weight in the various species studied, nor is there a close relationship between se-

* The authors are indebted to members of these laboratories who assisted with collection of specimens used.

TABLE I. Animals, Body Weight, Sex, Source of Blood and Anesthetics Used.

Animals	Body wt range, kg	Sex	Source of blood	Anesthetics
Rhesus monkey	2 – 3	Mix	Femoral artery	Na amytal
Mongrel dog	8 –15	"	Femoral vein	"
" cat	1.5 – 2	"	" "	Chloralose
Albino rabbit	2.5 – 3	♀	Heart	None
Guinea pig	.650– .850	♀	"	"
Golden hamster	.150– .200	Mix	"	Ether
Albino rat	.100– .150	♀	Decapitation	Na pentobarbital
" mouse	.015– .020	♀	"	None
'Barn' pigeon	.240– .340	Mix	Heart	"
Nebulous toad *Bufo valliceps*	.016– .032	♀	"	Pithed
Toad *Bufo fowleri*	.012– .020	♀	"	"
Bull frog *Rana catesbeiana*	.195– .545	Mix	"	"
Small frog *Rana pipiens*	.028– .032	♂	"	"

rum, bile, and liver total cholesterols. Serum total cholesterol concentration of the dog is higher than that of the monkey and the cat. On the other hand, the monkey has a higher concentration of total cholesterol in the bile and the liver.

Among the 5 species of rodents studied, total cholesterol concentrations in the serum and the liver are highest in hamsters and mice, lowest in rabbits and guinea pigs, and those of rats in between. Rabbits excrete relatively large amounts of cholesterol in the bile, while the bile total cholesterol level of guinea pigs is very low.

Pigeons, the only species of fowl studied, have the highest concentration of serum and

TABLE II. Serum, Bile and Liver Total Cholesterol Concentrations.

Animals	Serum, mg %	Bile, mg %	Liver, mg/100 g wet wt
Monkey	111.7 ± 1.8* 75.0–150.0† (20)	272.3 ±26.2 125.0–500.0 (17)	284.4 ± 8.8 211.3–398.4 (20)
Dog	133.3 ± 2.3 88.8–220.0 (26)	44.3 ± 1.7 29.5– 67.5 (33)	262.8 ±12.4 159.2–354.2 (19)
Cat	77.6 ± 5.9 38.0–119.0 (20)	35.6 ± 4.1 19.0– 87.0 (20)	190.4 ± 7.7 143.5–259.3 (20)
Rabbit	44.0 ± 2.6 22.1– 60.0 (15)	43.4 ± 6.8 25.4– 75.0 (7)	221.1 ± 9.2 165.1–294.7 (15)
Guinea pig	36.9 ± 2.6 12.0– 62.0 (24)	2.2 ± .4 .4– 7.6 (23)	198.9 ± 6.0 154.9–274.8 (25)
Hamster	153.9 ± 8.9 112.0–210.0 (12)		303.7 ±12.6 208.0–356.0 (12)
Rat	85.4 ± 1.9 68.0–103.0 (20)	26.1 ± 1.5 15.6– 39.0 (19)	271.5 ± 6.7 224.1–342.3 (20)
Mouse	110.5 ± 8.0 64.0–220.0 (20)		292.0 ±14.4 225.2–488.4 (20)
Pigeon	524.5 ±58.5 325.8–724.5 (27)		431.3 ±37.8 296.8–570.4 (27)
Toad *Bufo valliceps*	152.8 ±26.6 74.8–260.0 (10)		343.9 ±41.4 208.1–451.8 (10)
Toad *Bufo fowleri*	98.1 ±18.8 44.0–238.6 (10)		237.2 ±17.0 128.4–320.5 (10)
Frog *Rana catesbeiana*	69.9 ± 7.8 15.3–136.8 (12)	35.2 ± 3.3 19.3– 61.3 (12)	266.2 ±37.9 169.7–359.7 (12)
Frog *Rana pipiens*	28.5 ± 3.3 7.8– 41.2 (12)	28.3 ± 1.4 23.5– 33.9 (6)‡	395.4 ±22.0 248.7–706.2 (24)

* Mean and its stand. error. † Range of total cholesterol concentrations. No. in parentheses indicates No. of animals used. ‡ Six pooled bile samples from 12 frogs.

liver total cholesterol of the 9 species of laboratory animals studied. The collection of bile from pigeons was not successful because of the extremely small size of the gall bladder. The significance of the high serum and liver total cholesterol of this species is not known. Recently, it was reported that certain breeds of pigeons have a high incidence of spontaneous atheromatous lesions in the aorta that are strikingly similar to those found in man(2).

Total cholesterol concentration in the liver of the amphibian varies with the 4 species studied. These concentrations do not differ greatly from those of the 9 species of laboratory animals. Serum total cholesterol concentrations of both species of toads are higher than those of both species of frogs. Both species of frogs excrete significant amounts of total cholesterol in the bile. Collection of bile from toads was not successful.

Summary. 1. Serum, bile, and liver total cholesterol levels of 9 species of laboratory animals and 4 species of amphibians are reported. 2. Dogs, monkeys, hamsters, and mice have relatively higher serum total cholesterol concentration than cats, rats, rabbits, and guinea pigs. 3. Total cholesterol concentration in liver varies only slightly among these species. 4. Gall-bladder bile of monkeys contains large amounts of total cholesterol. Guinea pigs excrete very small amounts of total cholesterol in bile. 5. Serum and liver total cholesterol concentrations of the pigeon are very high. 6. Total cholesterol concentration in liver varies slightly among the 4 species of amphibians used. Frogs excrete significant amounts of cholesterol in bile. 7. Serum total cholesterol concentrations of both species of toads are higher than those of both species of frogs.

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Received October 5, 1959. P.S.E.B.M., 1959, v102.

Plasma Cholesterol Levels in Rats Fed "Infarct-Producing Diets."* (25313)

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Hypercholesterolemia and experimental atherosclerosis have been produced by Wissler, by Fillios and Stare, and others, in rats fed diets containing cholesterol, thiouracil and bile salts(1,2). Only rarely has this atherosclerosis been complicated by coronary thrombosis and myocardial infarction. Recently, Hartroft, Thomas and O'Neal produced thromboses and infarcts in a large percentage of rats fed such diets modified by addition of 40% fat(3,4,5). More recently, Wilgram has also produced myocardial infarcts in rats by a somewhat similar regimen(6). This report presents results of studies of levels of plasma total cholesterol in animals given various modifications of our infarct-producing diet. Details of experiments and anatomic features of the disease have been described (3,4,5).

Method. Groups of 10 to 30 rats (Wistar albino males; 80-130 g initial weights) were housed in individual wire-bottom cages in air-conditioned animal room and given water *ad lib.* Semisynthetic diets were prepared according to Table I ("basal ingredients" with partial replacement of sucrose by various fats). Diets were refrigerated and kept no longer than 2 weeks. All rats were offered more food than they would eat, left-overs and scatter weighed, and daily records of food consumption of each animal kept. They were weighed weekly during experiment. Blood specimens were obtained by clipping tails at intervals of 2 weeks, and total cholesterol content in plasma was determined by the method of Pearson, Stern and McGavack(7).

* Supported by Grant from Nat. Heart Inst., N.I.H. and the Nutrition Fn. Presented in part at Fed. Meet., Atlantic City, N. J., Apr. 15, 1959.

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