Table 1. Relative heart weights (percentage of body weight) as reported by Ridgway and Johnston and as calculated from blood volume and from blood oxygen capacity.

Reported	Calculated by	
	Eq. 1	Eq. 2
Phocoenoides dalli		
1.31	1.30	1.38
Lagenorhynchus obliquidens		
0.85	0.91	0.88
Tursiops truncatus		
0.54	0.51	0.49

per kilogram of body weight, the packed cell volume in percent, and the constant being 1.59×10^{-4}.

A restatement of Eq. 1 is in terms of the blood oxygen capacity (C_o) of a 100-kg porpoise of each species. This relationship is:

$$W = C_o\ (3.5 \times 10^{-4}) \qquad (2)$$

where the blood oxygen capacity is given in milliliters. Results are shown in the last column of the table. It will be of interest to observe if these relationships pertain to additional species.

RICHARD P. SPENCER
Department of Radiology,
Yale University School of Medicine,
New Haven, Connecticut

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Which RNA Stimulates Mitosis in Antibody-Forming Cells?

Hashem [*Science* **150**, 1460 (1965)] reports that RNA extracted from antigen-stimulated peripheral lymphocytes promoted transformation and mitosis of unstimulated lymphocytes. The reaction appeared specific because RNA from unstimulated cells was ineffectual.

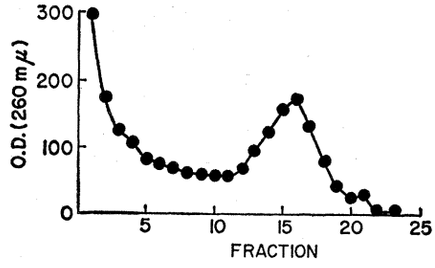

Fig. 1. Mouse-spleen RNA was extracted by the warm-phenol technique. A portion was dissolved in 0.15*M* NaCl and centrifuged in a 5- to 20-percent sucrose gradient at 35,000 rev/min for 10 hours at 5°C in a Spinco 39 rotor. Fractions were collected from the bottom of the tube and the optical density at 260 nm was determined.

These observations are in certain respects similar to experiments reported by me and my co-workers [E. P. Cohen and J. J. Parks, *Science* **144**, 1012 (1964); E. P. Cohen, R. N. Newcomb, L. K. Crosby, *J. Immunol.* **95**, 583 (1965)]. We reported that RNA extracted from the spleens of mice immunized with sheep red blood cells converted a small number of spleen cells obtained from nonimmunized mice to antibody-forming cells. RNA from nonimmunized mice was ineffectual. In both Hashem's report and ours, the active material was extraordinarily sensitive to ribonuclease. We also found that the active RNA sedimented in the 8 to 12*S* fraction of a sucrose density gradient. We were, therefore, curious to learn that Hashem found that heavy ribosomal RNA was active. Hashem's claim was based on the finding of activity in the lower two-fifths of a 5- to 20-percent sucrose gradient centrifuged at 35,000 rev/min for 10 hours in a Spinco SW 39 rotor. He reported no optical-density pattern.

We prepared RNA from mouse spleen by the warm-phenol (60°C) technique, and subjected one portion to gradient centrifugation (5 to 20 percent sucrose) under more conventional conditions (Spinco SW 39 rotor at 38,000 rev/min for 4 hours at 5°C) and a second portion under the conditions reported by Hashem at 5°C. Under conventional conditions, the usual three peaks were observed. Figure 1 shows the optical density after centrifugation for 10 hours. It appears that when mouse RNA is centrifuged at 35,000 for 10 hours, most of the ribosomal RNA is driven into the bottom of the tube. Naturally, factors other than speed and rotor size influence the sedimentation of RNA. For example, rotor temperature during centrifugation is an important consideration and was not reported. The extent of this and other variables in determining the RNA pattern obtained in two laboratories can only be guessed. It does seem possible, therefore, that the RNA fraction that stimulates mitosis of human lymphocytes is closer in size to the RNA that converts cells to form antibody than to the heavy ribosomal fractions suggested by Hashem.

EDWARD P. COHEN
Institute of Microbiology,
Rutgers University,
New Brunswick, New Jersey 08903

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It seems to me that Cohen and I have reached practically the same conclusion in spite of the apparent disagreement about nomination of the active RNA fractions. I would add, however, that in dealing with different antigen-antibody systems I would interpret cautiously any comparative conclusions relating to the conditioned RNA fractions.

NEMAT HASHEM
5, El Goumhouria Street,
Cairo, Egypt, U.A.R.

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Cilia in Nematodes?

In reply to L. C. Cole's question (*1*) about the validity of the statement "Cilia are found in all animal groups except Nematoda," K. H. Kilburn (*2*) correctly points out the presence of cilia in the sperm and sensory organs of many arthropods.

Kilburn also refers to Browne and Chowdbury's observation (*3*) of cilia in the intestine of the dog nematode *Ancylostoma caninum*. This observation I have since been able to show, by the use of more refined electron-microscope techniques than were available in 1959, to be mistaken. The intestinal epithelium of *A. caninum* is not covered by cilia, but has a brush border composed of microvilli, each measuring approximately 8 microns in length and 0.1 micron in thickness. A central core extends from the tip of the microvillus into the apical cytoplasm of the cells, forming rootlets (*4*). Electron-microscope investigations of the intestines of other nematodes, for example *Ascaris* (*5*), have all displayed the presence of such a brush border composed of microvilli covering the epithelium.

If cilia are to be found in nematodes one must undoubtedly, as in arthropods, search in the sensory organs. Therefore we must continue to say that "cilia have not yet been found in nematodes."

JØRN ANDREASSEN
Department of Parasitology,
Zoological Laboratory,
University of Copenhagen, Denmark

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3. H. G. Browne and A. B. Chowdbury, *J. Parasitol.* **45**, 241 (1959).
4. J. Andreassen, in preparation.
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