TABLE 3

Comparison of the values for mean cell volume obtained by different methods [1]

Inhibitor	Coulter counter [2]			Hematocrit [3]			Calculated from cell diameter [3]
	Control [4]	Treated [4]	Ratio [5]	Control [6]	Treated [6]	Ratio [5]	Ratio of volumes [7]
MC	4400 ± 98	8250 ± 241	1.87	3470 ± 370	7580 ± 320	2.24	2.50–3.94
HN[2]	4975 ± 245	8440 ± 420	1.69	3730 ± 390	5480 ± 200	1.47	3.22–5.39
FUDR	4570 ± 166	7310 ± 376	1.60	3860 ± 250	7260 ± 520	1.88	2.70–4.41
HU	4460 ± 175	8200 ± 364	1.84	3180 ± 190	8420 ± 250	2.64	2.72–4.48
TdR	4480 ± 210	7640 ± 217	1.70	3650 ± 410	6970 ± 790	1.91	1.73–2.26
AraC	4980 ± 242	5970 ± 300	1.20	3690 ± 240	5610 ± 540	1.52	1.91–2.66

[1] HeLa cells treated for 48 hours with various inhibitors at concentrations shown in table 1.

[2] The values (in cubic microns) are arithmetical means (± S.E.) of four separate experiments, each performed in duplicate.

[3] Measured with calibrated scale in the eye piece of the microscope on 50 cells in each experiment. Two measurements, at right angles to each other, were taken for each cell.

[4] The values for mean cell volumes were obtained from charts similar to those shown in figure 4. Each channel number multiplied by its corresponding relative number was divided by the sum of the relative numbers. The mean channel number thus obtained was converted to the mean cell volume in cubic microns by multiplying by a factor (638), found by sizing latex particles of uniform known diameter.

[5] The ratio is of treated/control values.

[6] Duplicate samples of 30×10^6 cells were used for these determinations. These cell numbers are rather low for accurate hematocrit readings.

[7] The first value given has been calculated from the square of the observed mean cell diameter, and the second from the cube. If the cells were perfect spheres, the cube ratio would apply; if they were infinitely thin the square function would be more correct. Obviously, the real volume should lie between these limits if the degree of cell flattening does not alter as the result of the drug action.