Tab. I. Cell surface area determinations.

Cell type	Determination by the colloidal gold labeling technique			Determination by radius
	Gold particles/cell (radiometry)	Gold particles/μm^2 cell surface (morphometry)	Cell surface area ($\mu m^2 \pm SD$)	Cell surface area (μm^2)
Staph. aureus	19700	4900±540 (SD n=40)	4.0±0.44 (11%)	3.6
Macrophages J-774				
High gold labeling	173000	137± 35 (SD n=25)	1260± 327 (26%)	200
Low gold labeling	72500	65± 12 (SD n=25)	1110± 210 (19%)	
Fibroblasts L-929				
Suspension culture	91000	110± 56 (SD n=50)	830± 421 (51%)	n.d.
Monolayer culture	113000	45± 25 (SD n=50)	2500±1400 (56%)	

The results obtained with the gold labeling technique are summarized. The standard deviation (SD) is lowest in the relatively homogenous population of Staph. aur. cells (11%). The highest SD was found in the fibroblast line L-929 and may be explained by the heteroploid state of these cells [12], because the more homogenous macrophage cell line J-774 shows a much lower SD (20%). In Staph. aur. the cell surface determination by radius corresponds well with the determination by the gold labeling technique. In eukaryotic cells, e.g., macrophages, the determination by radius gives about 6 times lower values. Hence, exact values for the cell surface determination in eukaryotic cells are obtained only by the colloidal gold labeling technique. — The observations with macrophages show also that the cell surface area determinations are largely independent of the degree of saturation of binding sites: high concentration of gold particles in the incubation medium (high gold labeling) results in the same cell surface area as obtained with low concentrations (low gold labeling).

[12] Hsu, T. C.: Mammalian chromosomes in vitro. XIII. Cyclic and directional changes of population structure. J. Nat. Cancer Inst. **25**, 1339–1353 (1960).