

Table 1

Some basic characteristics of bacterial and eukaryotic cells related to macromolecular crowding and intrinsic disorder

Type of cell	Cellular volume ( $\mu\text{m}^3$ )	Water content (%)	Percentage of total dry weight			Avg. number of proteins in proteome <sup>c</sup>	Number of proteins per cell <sup>d</sup>	Intrinsic disorder characteristics <sup>c</sup>		
			Proteins	RNA/DNA	Carbohydrates			Percent of disordered residues	Percent of proteins with IDPR > 30	Percent of proteins with extended disorder
Bacterial <sup>a</sup>	~1.3	70	55	20.5/3.1	8.4 <sup>b</sup>	~3000	$\sim 4 \times 10^6$	12.0–34.6	11.5–53.7	3.7–29.2
Eukaryotic (single cellular) <sup>e</sup>	~50	65–69 [56]	45	6.3/0.4	40 <sup>f</sup>	~6250	$\sim 1.5 \times 10^8$	27.4–47.1	59.9–68.4	19.2–43.8
Eukaryotic (multicellular) <sup>g</sup>	~2000	84.2 $\pm$ 0.5 [57]	70	1.4/5.9	5.3	~18,500	$\sim 6 \times 10^9$	35.1–36.1	37.6–61.4	28.3–42.0

<sup>a</sup> Data are given for a typical, rapidly growing bacterial cell (*E. coli*) (from [58]).<sup>b</sup> For a bacterial cell, carbohydrates include lipopolysaccharides, peptidoglycans and glycogen.<sup>c</sup> On the basis of data reported in [10].<sup>d</sup> Presented numbers are based on a back of the envelope calculation of the number of proteins per cell volume reported in [59], where it was assumed that irrespectively of its origin, a living cell contains  $3 \times 10^5$  proteins per  $1 \mu\text{m}^3$ .<sup>e</sup> Data are given for yeast cells growing with a generation time of 7 hours (from [58]).<sup>f</sup> For a yeast cell, carbohydrates include glycogen and other polysaccharides.<sup>g</sup> Data are given for mammalian cells based on data reported in [60].

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