

Dielectric Properties of Ribosomal Core Particles Lacking a Select Population of Proteins

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In this communication we present a comparative investigation of the dielectric properties of native *E. coli* 70S and ribosomal cores obtained by LiCl treatment. Previous data obtained in our laboratory showed that ribosomes exhibit two different dielectric dispersions. We show that elimination of some select proteins modifies only the first one and therefore the overall dielectric properties of the ribosome result altered. Ribosomal RNA and proteins remaining in the core particle are mainly responsible for the second dielectric dispersion. Our experimental approach allows an estimation of the size of RNA traits exposed to solvent both in native ribosomes and in core particles where a higher portion of rRNA interacts with the external environment. Furthermore our results are consistent with the idea that proteins remaining after high salt treatment are necessary and sufficient for the maintenance of the basic structural properties of the ribosome.