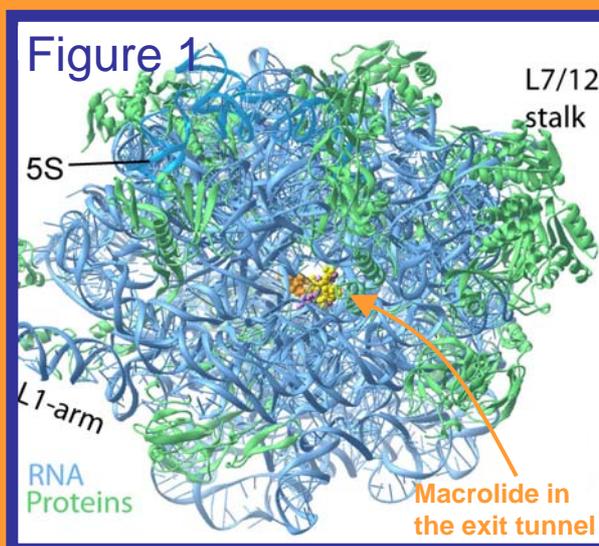


Premio Nardelli 2006 – Rita Berisio



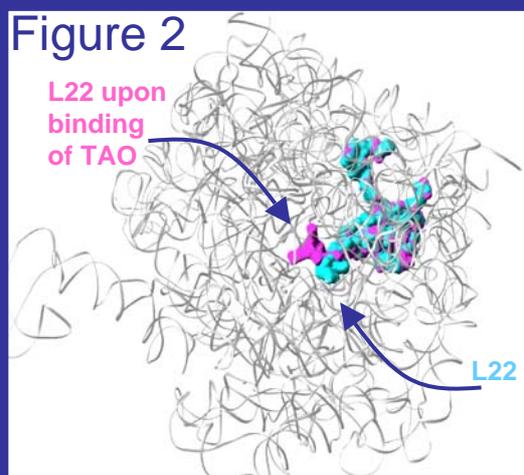
Rita Berisio was born in 1972 in Torre del Greco, Naples, Italy. She graduated in chemistry at the University of Naples Federico II (1995). From 1996 to 1998 she worked at the European Molecular Biology Lab in Hamburg and in 1999 she received her PhD at the University of Naples. In 2000 Rita Berisio has been a post-doc of the University of Naples and in 2001 she became a permanent researcher at the Institute of Biostructures and Bioimaging, in Naples.

The research activities of Dr. Rita Berisio are focussed on several aspects of the structure/function relationship in macromolecules of biological interest. These activities have been carried out by combining macromolecular crystallography with other physical-chemical techniques (CD spectroscopy, molecular modelling, molecular dynamics and statistical analyses). She studied a variety of macromolecular systems of different structural complexity. Her main achievements include a novel model for collagen thermostability, an atomic resolution picture of the protein structure variations associated with pH changes and new insights into mechanisms of action and inhibition of the ribosome.



Crystallographic studies on the ribosome, a giant organelle devoted to protein biosynthesis, are carried out in collaboration with a framework of international institutions coordinated by Prof. Ada Yonath.

Figure 2



Of particular interest are her studies of the structure of the ribosome large subunit (D50S) with substrate analogues and antibiotics.

Just as an example, the crystal structure of D50S in complex with the macrolide antibiotic troleandomycin (TAO) has shown that this antibiotic inhibits protein synthesis both by blocking the ribosome exit tunnel (Figure 1) and by triggering striking conformational rearrangements in a protein, L22, which constitutes the ribosomal tunnel wall (Figure 2). This finding has demonstrated the great versatility of antibiotic inactivation mechanisms and has provided the first atomic resolution evidence of an intrinsic dynamicity of the ribosome exit tunnel.