

## **Ribosome Assembly and Translation**

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Synchrotron footprinting studies of the assembly of the ribosome have been initiated with the goal of understanding both the assembly of these large nucleic acid-protein complexes and the conformational changes that accompany the process of translation. The solution of crystal structure of the 30 S and 50 S subunits as well as the 70 S particle (the latter by the Noller laboratory) has opened the window on ribosome structure-function studies. Preliminary studies have been conducted at X-28C on the free 16 S rRNA, isolated 30 S and 50 S subunits and the intact 70 S ribosome. Because of the great length of the 16 S rRNA, standard methods of radio-labeling and footprinting are not feasible for this project. In experiments exposed to x-rays at X-28C by CSB personnel using samples sent from the Noller laboratory, a validation of the indirect labeling procedures used by this group in static •OH footprinting experiments is underway. A complete scanning of the entire 16S rRNA using the indirect labeling protocol has recently been completed. Additional experiments were conducted during Ms. Nguyenle's and Dr. Wilson's first visit to the NSLS this past spring. During this visit they completed all of the safety training required for their use of the X-28C footprinting facility. Additional control and calibration experiments are planned for this summer with assembly experiments to commence in the fall.