Translation initiation in eukaryotes is a multistep process requiring the orchestrated interaction of several eukaryotic initiation factors (eIFs) together with the small ribosomal subunit to locate the mRNA’s translational start and to properly decode the genetic message that it carries. The largest of these factors, eIF3, forms the scaffold for other initiation factors to promote their spatially coordinated placement on the ribosomal surface. It is our long-standing pursuit to map the 40S-binding site of the yeast multisubunit eIF3 and here we present three new mutual interactions between these two macromolecules (i) The C-terminal region of the eIF3c/NIP1 subunit is comprised of the conserved bipartite PCI domain and we show that a short C-terminal truncation and two clustered mutations directly disturbing the PCI domain produce lethal or slow growth phenotypes and significantly reduce amounts of 40S-bound eIF3 in vivo. The extreme C-terminus directly interacts with small subunit ribosomal protein RACK1/ASC1, which is a part of the 40S head, and, consistently, deletion of ASC1 impairs eIF3 association with ribosomes. The PCI domain per se shows strong but unspecific binding to RNA, for the first time implicating this protein fold in protein–RNA interactions. We conclude that the c/NIP1 C-terminal region forms an important intermolecular bridge between eIF3 and the 40S head region by contacting RACK1/ASC1 and most probably also 18S rRNA. (ii) The interaction between the N-terminal domain of the eIF3a/TIF32 subunit of eIF3 and the small subunit ribosomal protein RPS0A was discovered previously, but here we analyzed this contact in detail and defined the residues 201-400 of a/TIF32 that specifically interact with a flexible extreme C-terminal tail (CTT) of RPS0A. Indeed, the conditional depletion and a viable CTT-less mutation of RPS0A inflict a marked drop in amounts of eIF3 and other eIFs associated with 40S subunits in the preinitiation complexes. (iii) The eIF3g/TIF35 subunit specifically interacts with RPS3 and RPS20 located near the ribosomal mRNA entry channel. These observations underscore the placement of the major body of the yeast eIF3 to the head, neck, beak and shoulder regions of the solvent-exposed side of the 40S subunit.