



**Figure S4. Electron density.**

Stereo diagram showing unbiased  $m(\text{Fo}-\text{Fc})$  difference electron density (contoured at  $3\sigma$ ) for residues M40, H533, base Ade76 of the tRNA, and Ile-AMS in the synthetic site of the *E. coli* LeuRS:tRNA complex. The density was obtained by rebuilding and refinement of the molecular replacement model without inclusion of the above mentioned protein residues, Ade76 and Ile-AMS.