

## Curriculum vitae: Irina Boni

### Address

Shemyakin–Ovchinnikov Institute of bioorganic chemistry RAS, Moscow, Russia

### Contacts

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### Education

1970–1975	USSR, Moscow	Institute of bioorganic chemistry RAS	PhD on bioorganic chemistry
1965–1970	USSR, Moscow	Lomonosov Moscow State University, chemistry department	diploma, honors degree

### IBCh positions

2021–to date	Senior research fellow
	Senior research fellow

### Language Proficiency

Russian, English, French

### Scientific societies' membership

RNA Society

American Society for Microbiology

### Titles

Doctor of Philosophy (Chemistry)

### Grants and projects

2018–2020	=
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### Publications

1. Aseev LV, Koledinskaya LS, **Boni IV** (2024). Extraribosomal Functions of Bacterial Ribosomal Proteins—An Update, 2023. *Int J Mol Sci* 25 (5), 2957, [10.3390/ijms25052957](https://doi.org/10.3390/ijms25052957)
2. Grigorov AS, Skvortsova YV, Bychenko OS, Aseev LV, Koledinskaya LS, **Boni IV**, Azhikina TL (2023). Dynamic Transcriptional Landscape of Mycobacterium smegmatis under Cold Stress. *Int J Mol Sci* 24 (16), , [10.3390/ijms241612706](https://doi.org/10.3390/ijms241612706)
3. Aseev LV, Koledinskaya LS, Bychenko OS, **Boni IV** (2021). Regulation of Ribosomal Protein Synthesis in Mycobacteria: The Autogenous Control of rpsO. *Int J Mol Sci* 22 (18), , [10.3390/ijms22189679](https://doi.org/10.3390/ijms22189679)
4. Aseev LV, Koledinskaya LS, **Boni IV** (2020). Autogenous regulation in vivo of the rpmE gene encoding ribosomal protein L31 (bL31), a key component of the protein-protein intersubunit bridge B1b. *RNA* 26 (7), 814–826, [10.1261/ma.074237.119](https://doi.org/10.1261/ma.074237.119)
5. Caillet J, Baron B, **Boni IV**, Caillet-Saguy C, Hajnsdorf E (2019). Identification of protein-protein and ribonucleoprotein complexes containing Hfq. *Sci Rep* 9 (1), 14054, [10.1038/s41598-019-50562-w](https://doi.org/10.1038/s41598-019-50562-w)
6. Aseev LV, Koledinskaya LS, **Boni IV** (2016). Regulation of ribosomal protein operons rplM-rpsI, rpmB-rpmG, and rplU-rpmA at the transcriptional and translational levels. *J Bacteriol* 198 (18), 2494–2502, [10.1128/JB.00187-16](https://doi.org/10.1128/JB.00187-16)
7. Aseev LV, Bylinkina NS, **Boni IV** (2015). Regulation of the rplY gene encoding 5S rRNA binding protein L25

- in *Escherichia coli* and related bacteria. *RNA* 21 (5), 851–861, [10.1261/rna.047381.114](https://doi.org/10.1261/rna.047381.114)
8. Aseev LV, Koledinskaya LS, **Boni IV** (2014). Dissecting the extended “-10” *Escherichia coli* rpsB promoter activity and regulation in vivo. *Biochemistry (Mosc)* 79 (8), 776–784, [10.1134/S0006297914080057](https://doi.org/10.1134/S0006297914080057)
  9. Aseev LV, Chugunov AO, Efremov RG, **Boni IV** (2013). A single missense mutation in a coiled-coil domain of *Escherichia coli* ribosomal protein S2 confers a thermosensitive phenotype that can be suppressed by ribosomal protein S1. *J Bacteriol* 195 (1), 95–104, [10.1128/JB.01305-12](https://doi.org/10.1128/JB.01305-12)
  10. Hajnsdorf E, **Boni IV** (2012). Multiple activities of RNA-binding proteins S1 and Hfq. *Biochimie* 94 (7), 1544–1553, [10.1016/j.biochi.2012.02.010](https://doi.org/10.1016/j.biochi.2012.02.010)
  11. Aseev LV, **Boni IV** (2011). Extraribosomal functions of bacterial ribosomal proteins. *Mol Biol* 45 (5), 739–750, [10.1134/S0026893311050025](https://doi.org/10.1134/S0026893311050025)
  12. Le Derout J, **Boni IV**, Régnier P, Hajnsdorf E (2010). Hfq affects mRNA levels independently of degradation. *BMC Mol Biol* 11, 17, [10.1186/1471-2199-11-17](https://doi.org/10.1186/1471-2199-11-17)
  13. Aseev LV, Levandovskaya AA, Skaptsova NV, **Boni IV** (2009). Conservation of regulatory elements controlling the expression of the rpsB-tsif operon in  $\gamma$ -proteobacteria. *Mol Biol* 43 (1), 101–107, [10.1134/S0026893309010142](https://doi.org/10.1134/S0026893309010142)
  14. Aseev LV, Levandovskaia AA, Skaptsova NV, **Boni IV** (2009). Conservation of the regulatory elements implicated in the control of the rpsB-tsif operon expression in gamma-proteobacteria. *Mol Biol (Mosk)* 43 (1), 111–118.
  15. Aseev LV, Levandovskaya AA, Tchufistova LS, Skaptsova NV, **Boni IV** (2008). A new regulatory circuit in ribosomal protein operons: S2-mediated control of the rpsB-tsif expression in vivo. *RNA* 14 (9), 1882–1894, [10.1261/rna.1099108](https://doi.org/10.1261/rna.1099108)
  16. **Boni IV** (2006). Diverse molecular mechanisms of translation initiation in prokaryotes. *Mol Biol* 40 (4), 587–596, [10.1134/S002689330604011X](https://doi.org/10.1134/S002689330604011X)
  17. Ziolkowska K, Derreumaux P, Folichon M, Pellegrini O, Régnier P, **Boni IV**, Hajnsdorf E (2006). Hfq variant with altered RNA binding functions. *Nucleic Acids Res* 34 (2), 709–720, [10.1093/nar/gkj464](https://doi.org/10.1093/nar/gkj464)
  18. Komarova AV, Tchufistova LS, Aseev LV, **Boni IV** (2005). An *Escherichia coli* strain producing a leaderless mRNA from the chromosomal lac promoter. *Bioorg Khim* 31 (5), 557–560.
  19. Komarova AV, Tchufistova LS, Aseev LV, **Boni IV** (2005). An *Escherichia coli* strain producing a leaderless mRNA from the chromosomal lac promoter. *Russ. J. Bioorganic Chem.* 31 (5), 502–505, [10.1007/s11171-005-0069-6](https://doi.org/10.1007/s11171-005-0069-6)
  20. Komarova AV, Tchufistova LS, Dreyfus M, **Boni IV** (2005). AU-rich sequences within 5' untranslated leaders enhance translation and stabilize mRNA in *Escherichia coli*. *J Bacteriol* 187 (4), 1344–1349, [10.1128/JB.187.4.1344-1349.2005](https://doi.org/10.1128/JB.187.4.1344-1349.2005)
  21. Tchufistova LS, Komarova AV, **Boni IV** (2003). A key role for the mRNA leader structure in translational control of ribosomal protein S1 synthesis in  $\gamma$ -proteobacteria. *Nucleic Acids Res* 31 (23), 6996–7002, [10.1093/nar/gkg883](https://doi.org/10.1093/nar/gkg883)
  22. Komarova AV, Tchufistova LS, Supina EV, **Boni IV** (2002). Protein S1 counteracts the inhibitory effect of the extended Shine-Dalgarno sequence on translation. *RNA* 8 (9), 1137–1147, [10.1017/S1355838202029990](https://doi.org/10.1017/S1355838202029990)
  23. Komarova AV, Tchufistova LS, Supina EV, **Boni IV** (2001). Extensive Complementarity of the Shine-Dalgarno Region and 3'-End of 16S rRNA Is Inefficient for Translation in vivo. *Russ. J. Bioorganic Chem.* 27 (4), 248–255, [10.1023/A:1011356520576](https://doi.org/10.1023/A:1011356520576)
  24. **Boni IV**, Artamonova VS, Tzareva NV, Dreyfus M (2001). Non-canonical mechanism for translational control in bacteria: Synthesis of ribosomal protein S1. *EMBO J* 20 (15), 4222–4232, [10.1093/emboj/20.15.4222](https://doi.org/10.1093/emboj/20.15.4222)
  25. Komarova AV, Tchufistova LS, Supina EV, **Boni IV** (2001). Extensive complementarity of the Shine-Dalgarno region and 3'-end of 16S rRNA is inefficient for translation in vivo. *Bioorg Khim* 27 (4), 290.
  26. **Boni IV**, Artamonova VS, Dreyfus M (2000). The last RNA-binding repeat of the *Escherichia coli* ribosomal protein S1 is specifically involved in autogenous control. *J Bacteriol* 182 (20), 5872–5879, [10.1128/JB.182.20.5872-5879.2000](https://doi.org/10.1128/JB.182.20.5872-5879.2000)
  27. Artamonova VS, Tzareva NV, **Boni IV** (1998). Regulation of the ribosomal L7/12 protein Synthesis: The Role of the intercistronic rplJL region as a translational enhancer. *Russ. J. Bioorganic Chem.* 24 (7), 467–474.
  28. Artamonova VS, Tzareva NV, **Boni IV** (1998). Regulation of the Ribosomal L7/12 Protein Synthesis: The Role of the Intercistronic rplJL Region as a Translational Enhancer. *Bioorg Khim* 24 (7), 537–538.

29. Poot RA, Tsareva NV, **Boni IV**, Van Duin J (1997). RNA folding kinetics regulates translation of phage MS2 maturation gene. *Proc Natl Acad Sci U S A* 94 (19), 10110–10115, [10.1073/pnas.94.19.10110](https://doi.org/10.1073/pnas.94.19.10110)
30. Artamonova VS, **Boni IV** (1996). The ssyF29 mutation in the Escherichia coli S1 ribosomal protein gene suppressing a defect in transmembrane protein transport results from insertion of the IS10R element. *Russ. J. Bioorganic Chem.* 22 (12), 824–826.
31. Birikh KR, Lebedenko EN, **Boni IV**, Berlin YA (1995). A high-level prokaryotic expression system: synthesis of human interleukin 1 $\alpha$  and its receptor antagonist. *Gene* 164 (2), 341–345, [10.1016/0378-1119\(95\)00488-R](https://doi.org/10.1016/0378-1119(95)00488-R)
32. Tzareva NV, Makhno VI, **Boni IV** (1994). Ribosome-messenger recognition in the absence of the Shine-Dalgarno interactions. *FEBS Lett* 337 (2), 189–194, [10.1016/0014-5793\(94\)80271-8](https://doi.org/10.1016/0014-5793(94)80271-8)
33. Tsareva NV, Muzychenko ML, **Boni IV** (1993). Analysis of the secondary structure of the regulatory region of mRNA of the Escherichia coli rpsA gene. *Russ. J. Bioorganic Chem.* 19 (10), 968–977.
34. **Boni IV**, Lsaeva DM, Musychenko ML, Tzareva NV (1991). Ribosome-messenger recognition: MRNA target sites for ribosomal protein S1. *Nucleic Acids Res* 19 (1), 155–162, [10.1093/nar/19.1.155](https://doi.org/10.1093/nar/19.1.155)
35. **Boni IV**, Isaeva DM (1988). Localization of RNA sites in bacteriophages Qbeta, fr and MS2 involved in interaction with ribosomal protein S1 during formation of complexes with 30S ribosomal subunit. *Dokl Akad Nauk SSSR* 298 (4), 1015–1018.
36. **BONI IV**, ZLATKIN IV, BUDOWSKY EI (1982). Ribosomal Protein S1 Associates with Escherichia coli Ribosomal 30-S Subunit by Means of Protein-Protein Interactions. *FEBS J* 121 (2), 371–376, [10.1111/j.1432-1033.1982.tb05796.x](https://doi.org/10.1111/j.1432-1033.1982.tb05796.x)
37. Budowsky EI, Simukova NA, Turchinsky MF, **Boni IV**, Skoblov YM (1976). Induced formation of covalent bonds between nucleoprotein components. V. UV or bisulfite induced polynucleotide-protein crosslinkage in bacteriophage MS2. *Nucleic Acids Res* 3 (1), 261–76, [10.1093/nar/3.1.261](https://doi.org/10.1093/nar/3.1.261)
38. **Boni IV**, Budowsky EI (1973). Transformation of non-covalent interactions in nucleoproteins into covalent bonds induced by nucleophilic reagents: I. The preparation and properties of the products of bisulfite ion-catalyzed reaction of amino acids and peptides with cytosine derivatives. *J Biochem* 73 (4), 821–830, [10.1093/oxfordjournals.jbchem.a130145](https://doi.org/10.1093/oxfordjournals.jbchem.a130145)