

Supplementary Information

Inhibition of Survivin by 2'-O-Methyl Phosphorothioate-Modified Steric-Blocking Antisense Oligonucleotides

Yalin Li ^{1,†}, Suxiang Chen ^{2,3,†,*}, Kamal Rahimizadeh ^{2,3}, Zhen Zhang ¹ and Rakesh N. Veedu ^{2,3,*}

¹School of Food and Biological Engineering, Henan University of Animal Husbandry and Economy, Zhengzhou 450018, China

²Centre for Molecular Medicine and Innovative Therapeutics, Health Futures Institute, Murdoch University, Murdoch 6150, Australia

³Precision Nucleic Acid Therapeutics, Perron Institute for Neurological and Translational Science, Nedlands, WA 6009, Australia

*Correspondence: Suxiang.Chen@murdoch.edu.au (S.C.); R.Veedu@murdoch.edu.au (R.N.V.)

†These authors contributed equally to this work.

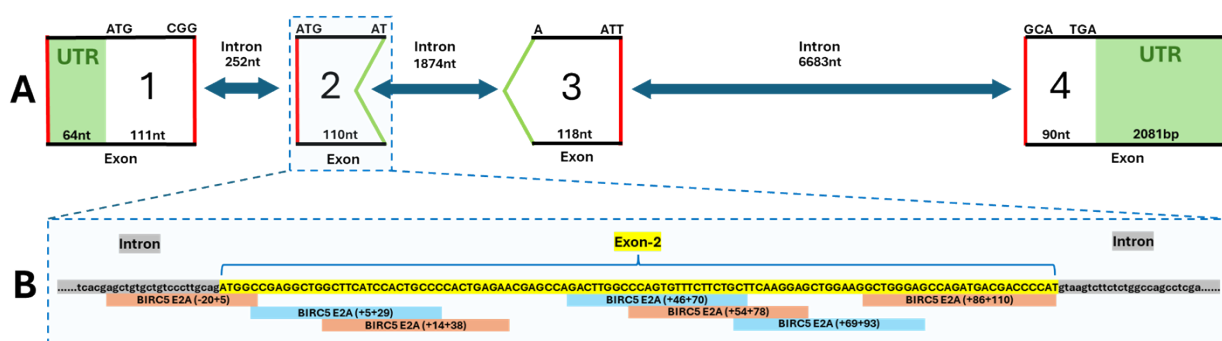


Figure S1. Designed ASOs targeting BIRC5. (A) Exon map of BIRC5. (B) ASOs targeting exon-2 of BIRC5. UTR: untranslated regions.

Figure S2. Locations of previously published BIRC5-targeting ASO sequences (yellow) and the best-performing sequences identified in the present study (red). The lowercase italic letters represent untranslated region (UTR) in *BIRC5* mRNA.

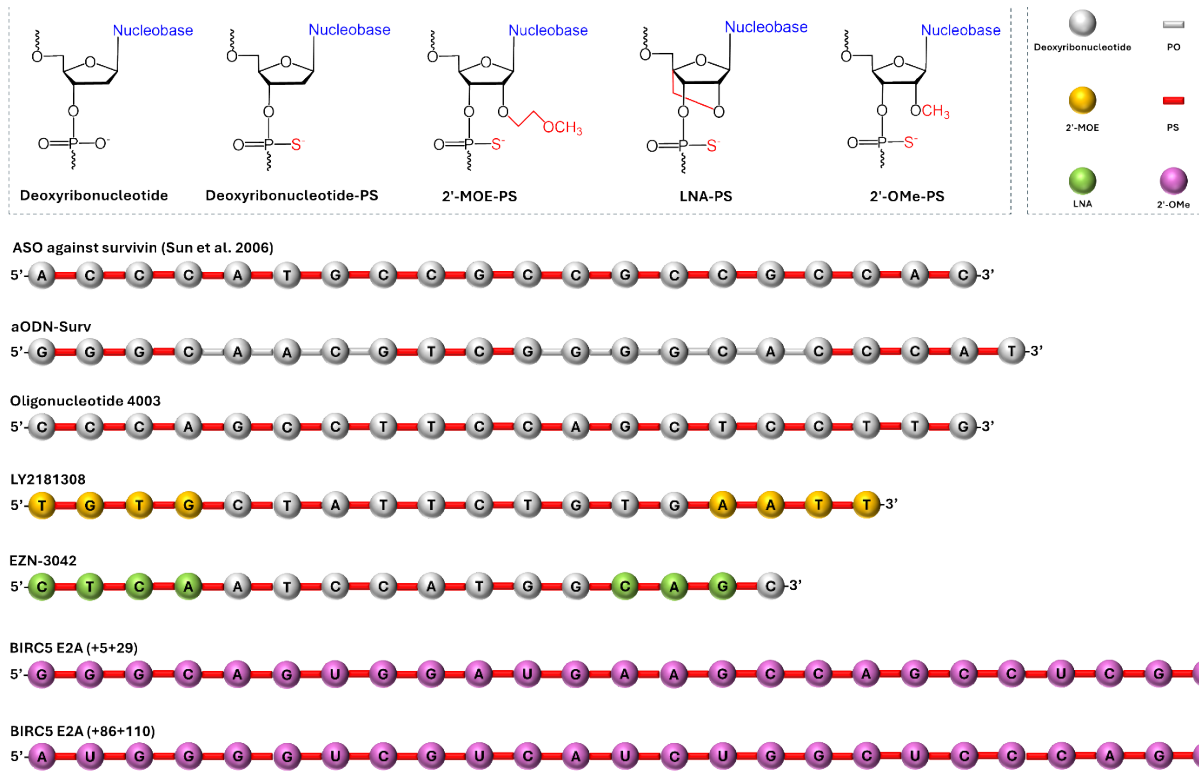


Figure S3. Chemistry of previously published BIRC5-targeting ASOs and the best-performing ASOs identified in the present study. PO, phosphodiester; PS, phosphorothioate; 2'-MOE, 2'-O-methoxyethyl; LNA, locked nucleic acid; 2'-OMe, 2'-O-methyl.

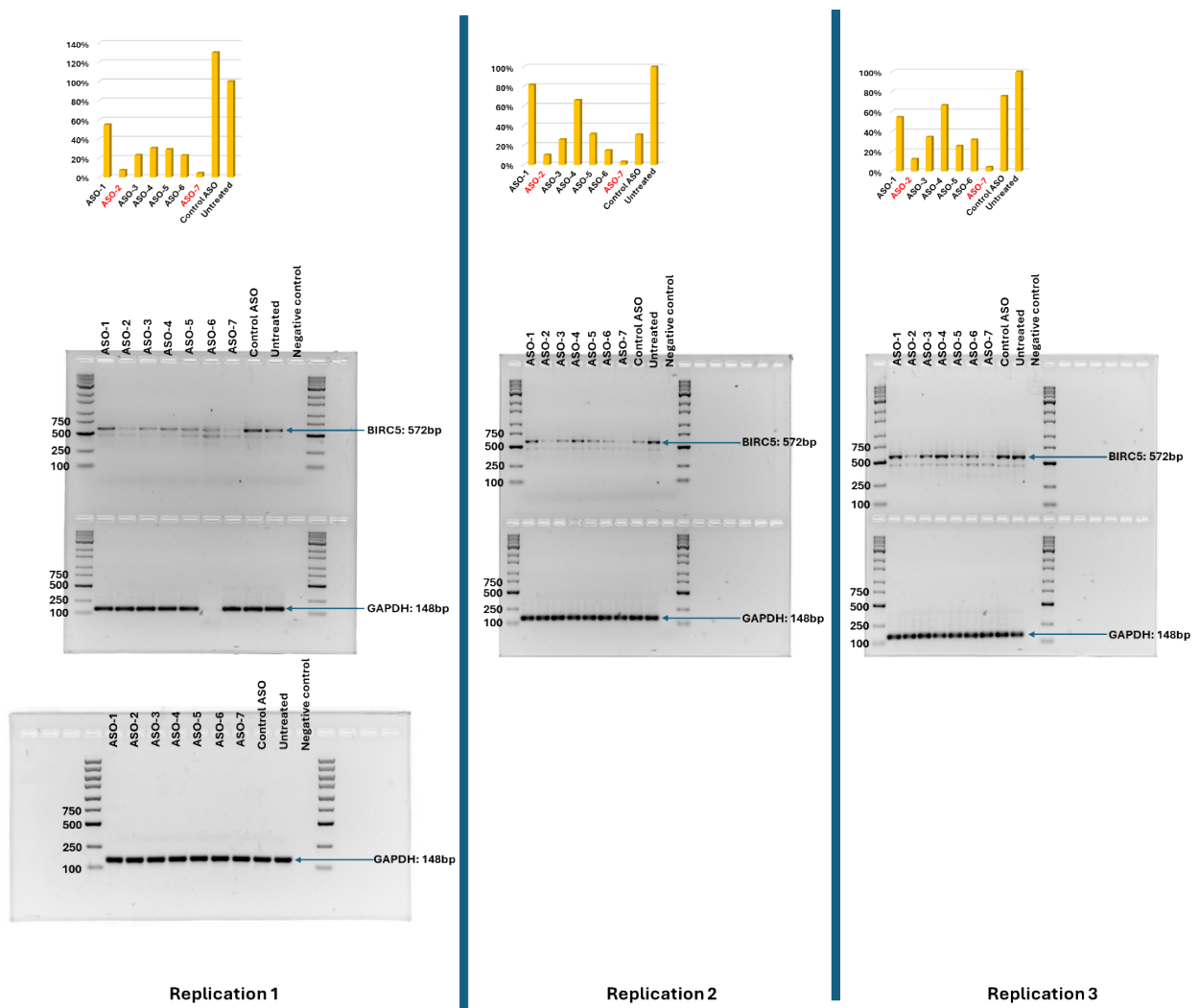


Figure S4. Original gel images and individual densitometry analysis of each image of the initial screening of seven BIRC5-ASOs. The transfection was repeated three times. The PCR of replication 1 was repeated twice using *GAPDH* primers due to an error occurred when preparing PCR using ASO-6 treated sample as template.

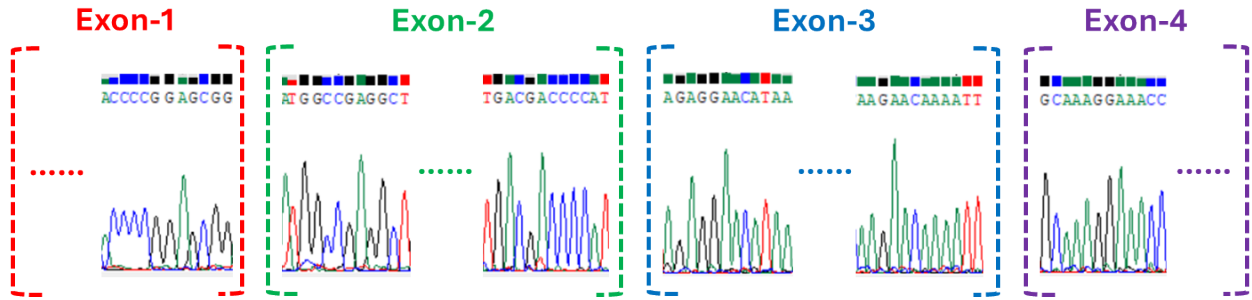


Figure S5. Sequencing results showed the successful expression of *BIRC5* transcript containing four exons (NM_001168.3).

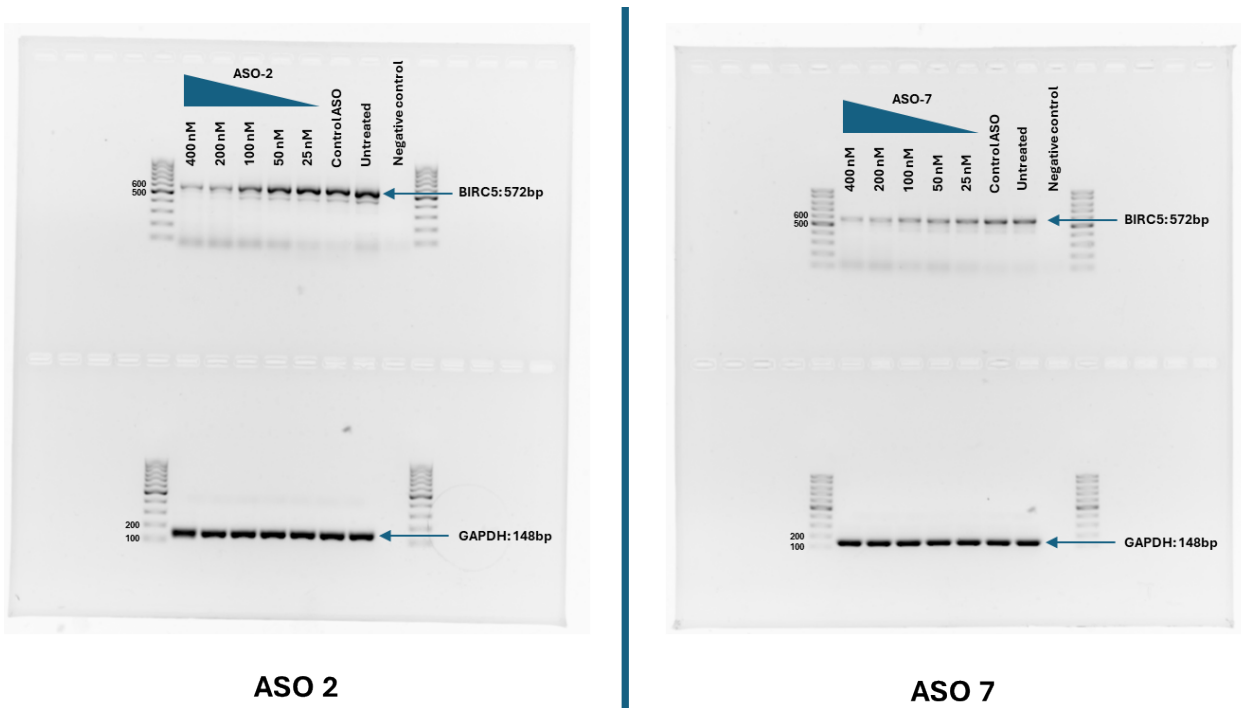


Figure S6. Original gel images of the dose-response assay of ASO-2 and ASO-7. Left panel: ASO-2; right panel: ASO-7. Doses of ASO-2 and ASO-7 included 400, 200, 100, 50, and 25 nM; and the doze of control ASO was 400 nM.

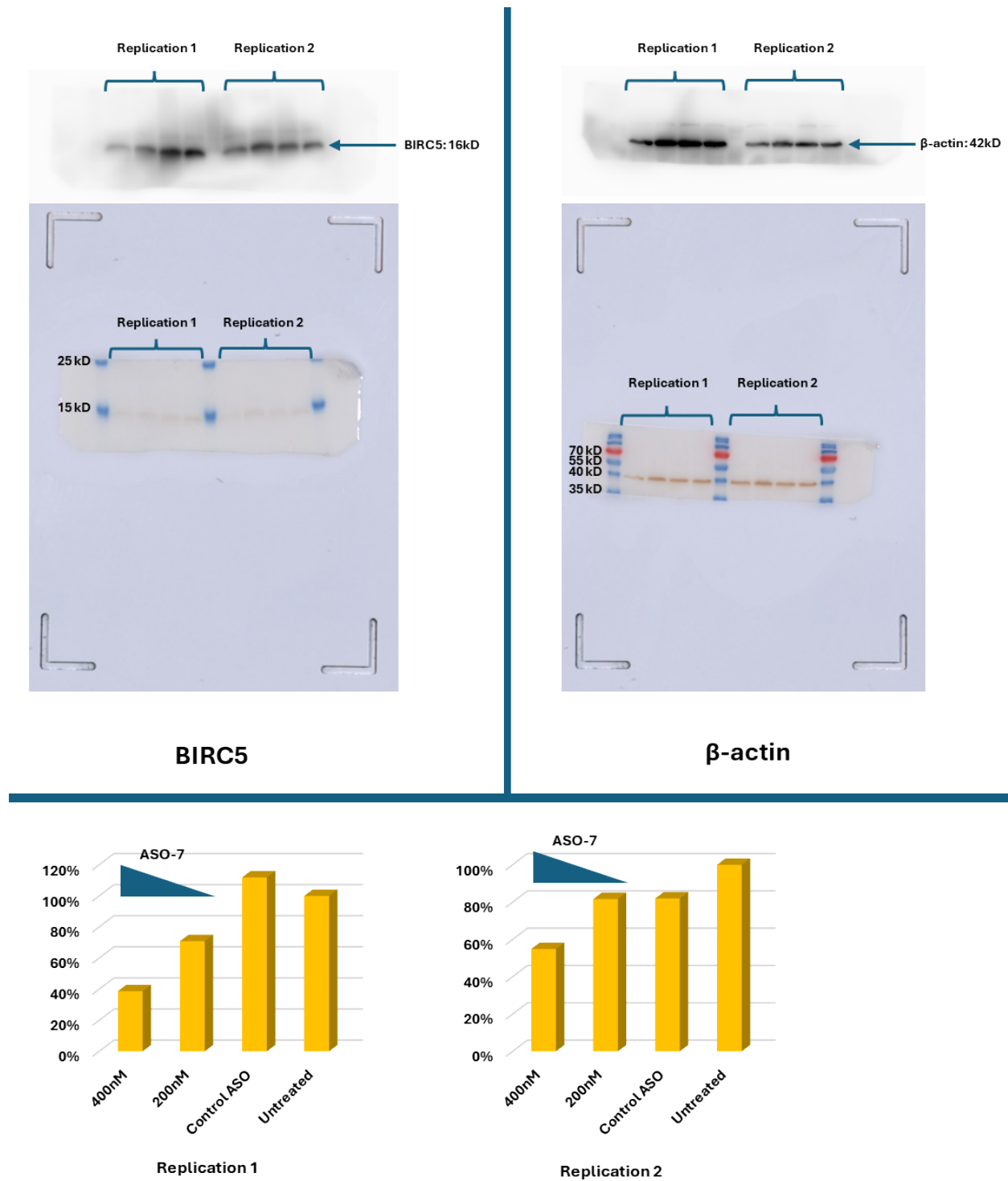


Figure S7. Original membrane images of the western blots of ASO-7. The experiment was repeated two times. Up-left panel: membrane images of BIRC5 blots; up-right panel: membrane images of beta-actin blots; down panel: individual densitometry analysis of the western blots. Doses of ASO-7 treatment included 400 and 200 nM; and the doze of control ASO was 400 nM.

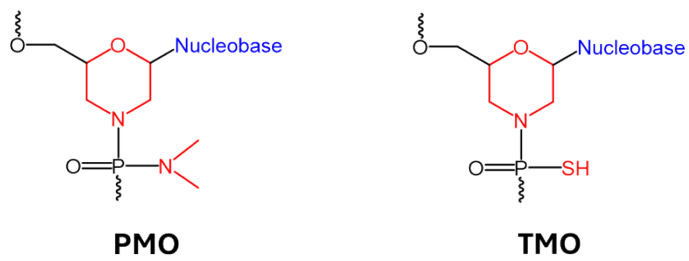


Figure S8. Structure of PMO and TMO analogue. PMO: phosphorodiamidate morpholino oligomer, TMO: thiomorpholino oligonucleotide.