

miR-7 Regulates GLP-1-Mediated Insulin Release by Targeting β -Arrestin 1

Alessandro Matarese ^{1,2,†}, Jessica Gambardella ^{1,3,†}, Angela Lombardi ^{1,4,†}, Xujun Wang ^{1,5} and Gaetano Santulli ^{1,3,5*}

¹ Department of Medicine, Fleischer Institute for Diabetes and Metabolism (FIDAM), Einstein-Mount Sinai Diabetes Research Center (ES-DRC), Albert Einstein College of Medicine, New York, NY 10461, USA; jessica.gambardella@einsteinmed.org (J.G.);

² AORN “Antonio Cardarelli”, 80100 Naples, Italy; alessandromatarese@yahoo.it (A. M.);

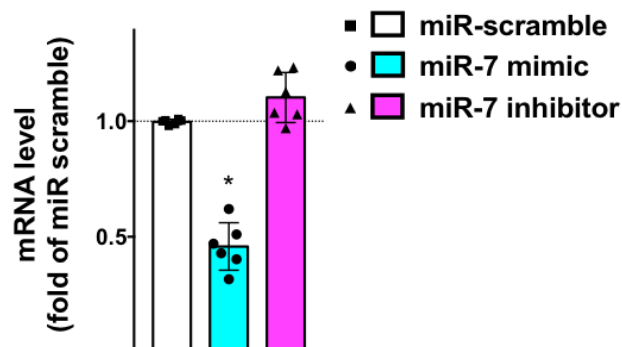
³ Department of Advanced Biomedical Science, “Federico II” University, and International Translational Research and Medical Education Consortium (ITME), 80131 Naples, Italy;

⁴ Department of Microbiology and Immunology, Albert Einstein College of Medicine, New York, NY 10461, USA; angela.lombardi@einsteinmed.org (A.L.);

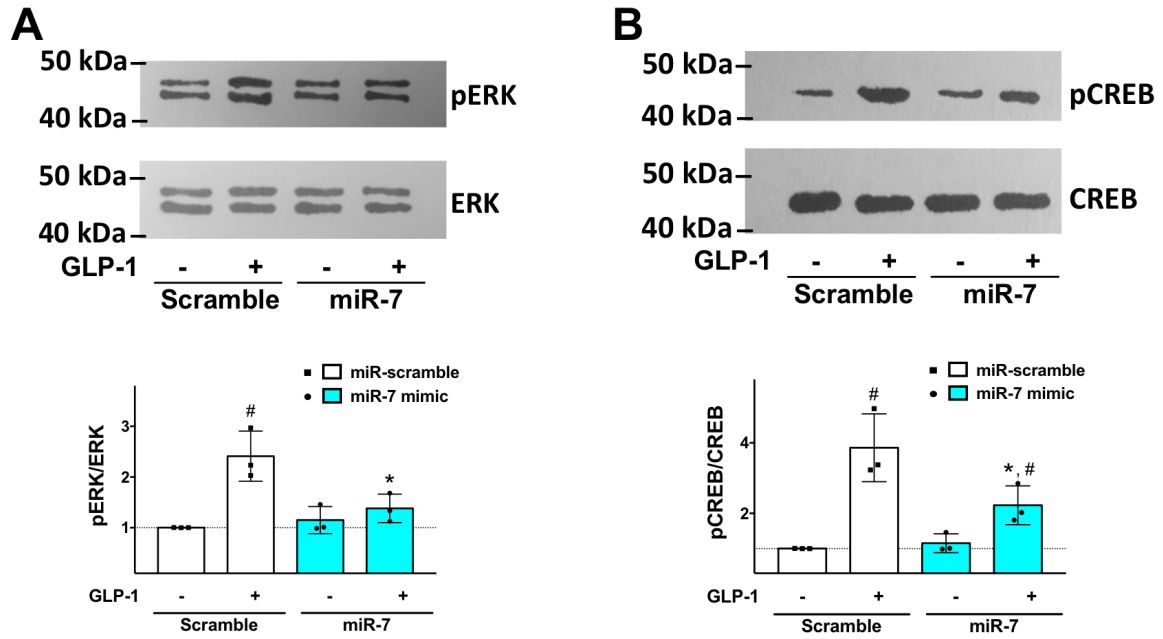
⁵ Department of Molecular Pharmacology, Albert Einstein College of Medicine, New York, NY 10461, USA; xujun.wang@einsteinmed.org (X.W.)

* Correspondence: gaetano.santulli@einsteinmed.org; Tel.: 718-430-3370

† These authors contributed equally to this work.



Supplementary Figure S1. β ARR1 expression in pancreatic β cells is reduced by miR-7. β ARR1 mRNA levels were measured in INS-1 β cells transfected with miR-7 mimic, inhibitor, or scramble (negative control) for 48 hours. Means $\pm$ S.E.M. are shown alongside actual values; *:p<0.05 vs miR-scramble.



Supplementary Figure S2. GLP-1-induced phosphorylation of ERK and CREB is significantly attenuated by miR-7. Forty-eight hours after transfection with miR-7 mimic or miR-scramble (negative control), INS-1 β cells were treated with GLP-1 (100 nM) for 10' and the activation of ERK (A) and CREB (B) was assessed in cell lysates by immunoblot. Representative immunoblots from three independent experiments are shown. Means $\pm$ S.E.M. are shown alongside actual values; *:p<0.05 vs scramble; #:p<0.05 vs no GLP-1 (vehicle).

Supplementary Table S1 – Sequences of oligonucleotide primers and product sizes

	Primer	Sequence (5'-3')	Amplicon (bp)
βARR1	<i>Forward</i>	ACG CCA AGA AAG GAG TCT CA	81
	<i>Reverse</i>	ATT TAG CCA AGC ACC ACC AC	
GAPDH	<i>Forward</i>	TGC CAC TCA GAA GAC TGT GG	85
	<i>Reverse</i>	GGA TGC AGG GAT GAT GTT CT	

βARR1: β Arrestin 1;

GAPDH: glyceraldehyde 3-phosphate dehydrogenase.