

Supplemental Material: Identification of RNA Oligonucleotides Binding to Several Proteins from Potential G-Quadruplex Forming Regions in Transcribed Pre-mRNA

Taiki Saito, Wataru Yoshida, Tomomi Yokoyama, Koichi Abe and Kazunori Ikebukuro

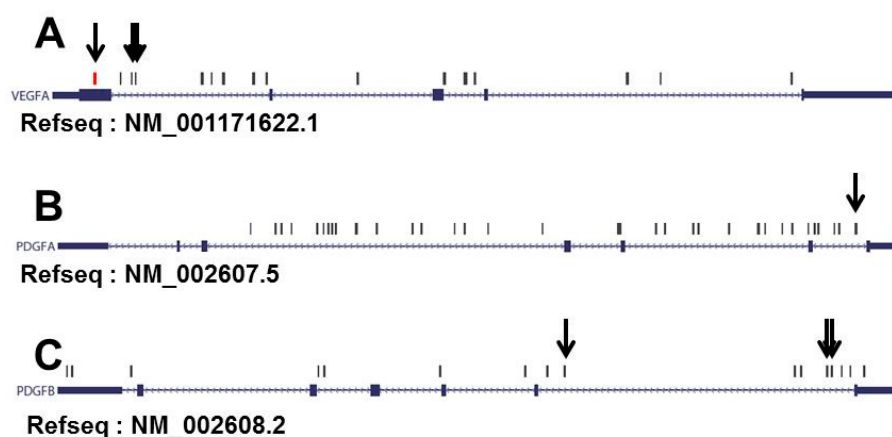


Figure S1. Map of the G4-forming RNAs in the (A) *VEGFA*; (B) *PDGFA*; and (C) *PDGFB* genes. The location of G4-forming sequences ($G_{23}N_{21}G_{23}N_{21}G_{23}N_{21}G_{23}N_{21}$; length ≤ 35 -mer) are represented by black vertical bar. The G4-forming sequence in the 5' UTR of *VEGFA* mRNA is represented by red vertical bar. The sequences used in this study are indicated by arrows.

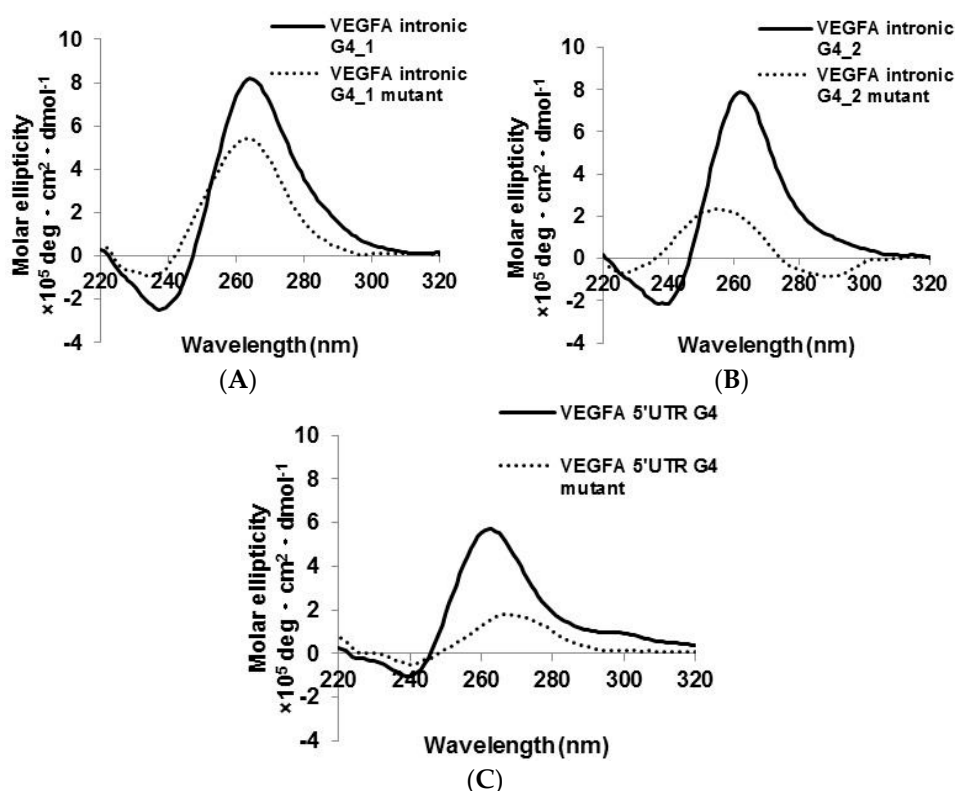
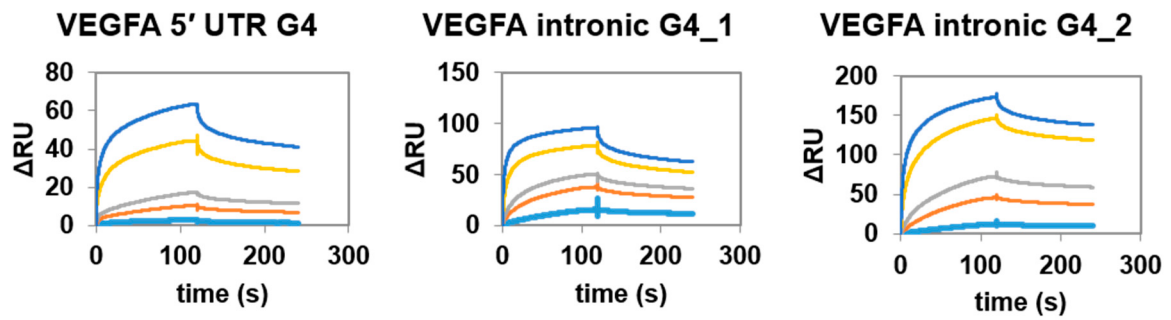
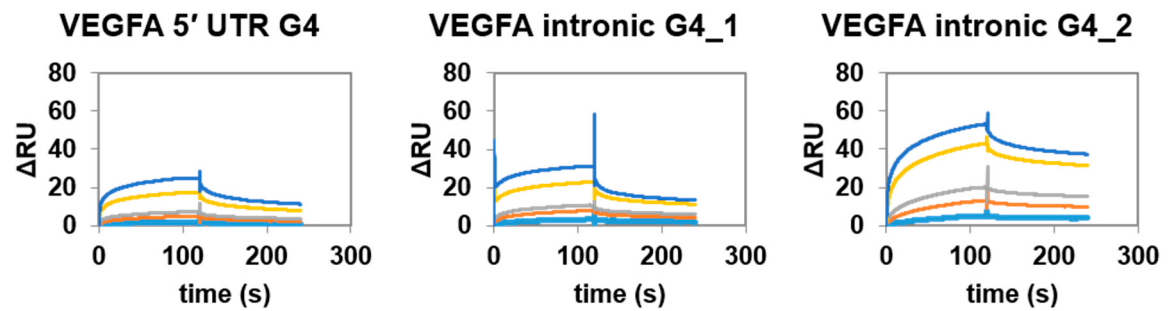


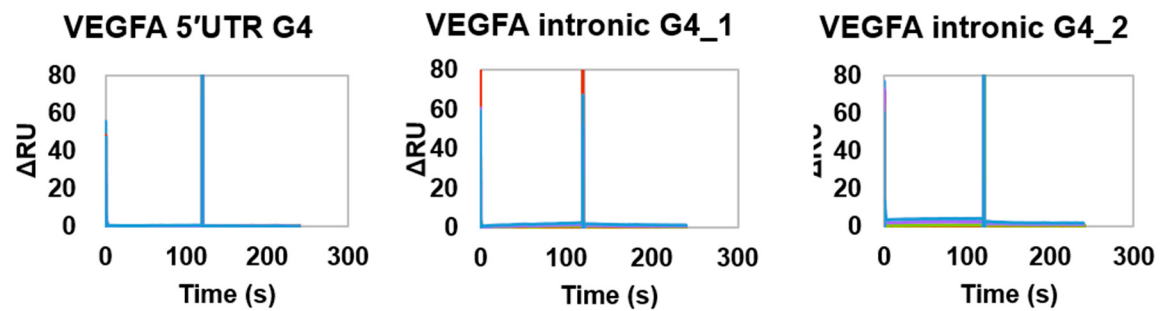
Figure S2. CD spectra of the VEGFA G4-forming RNAs. (A) VEGFA intronic G4_1 and VEGFA intronic G4_1 mutant; (B) VEGFA intronic G4_2 and VEGFA intronic G4_2 mutant; (C) VEGFA 5' UTR G4 and VEGFA 5' UTR G4 mutant, were analyzed.



(A)

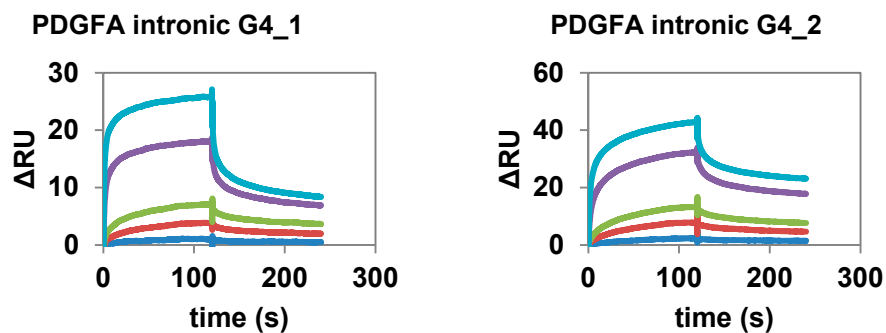


(B)



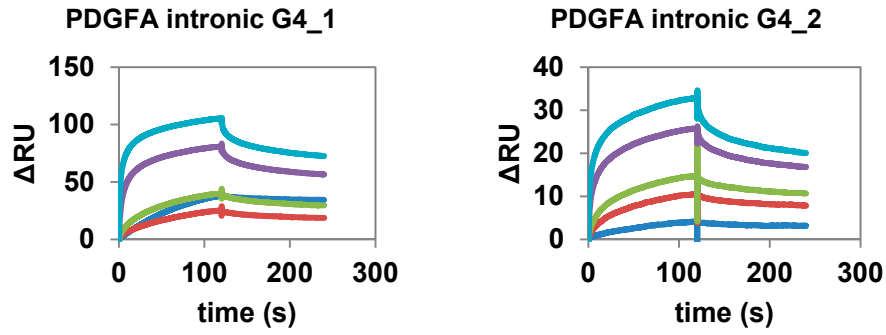
(C)

Figure S3. SPR analysis of VEGFA 5' UTR G4, VEGFA intronic G4_1, and VEGFA intronic G4_2 to (A)PDGF-AA; (B)PDGF-BB and (C) Thrombin.

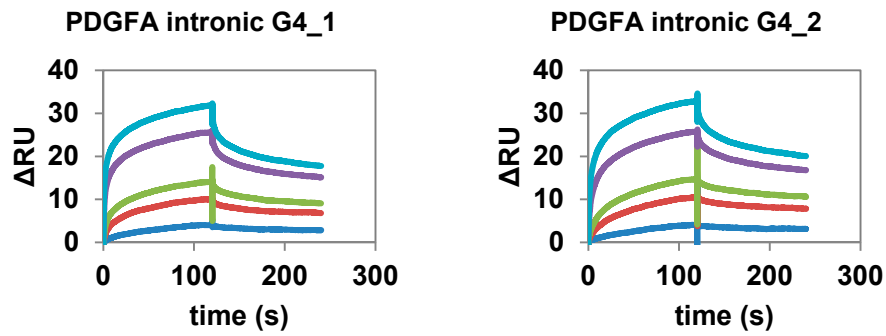


(A)

Figure S4. *Cont.*

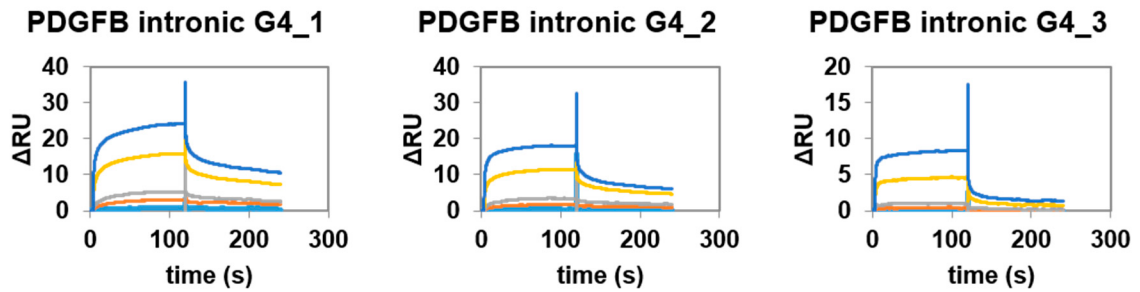


(B)

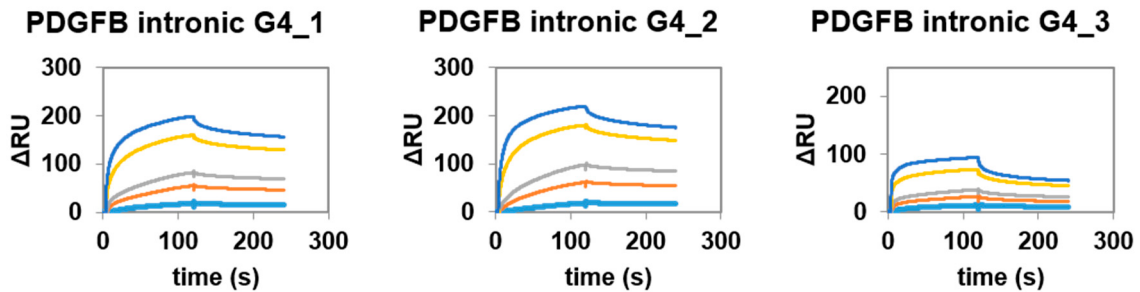


(C)

Figure S4. SPR analysis of PDGFA intronic G4_1 and G4_2 to (A) VEGF165, (B) PDGF-AA, and (C) PDGF-BB.



(A)



(B)

Figure S5. *Cont.*

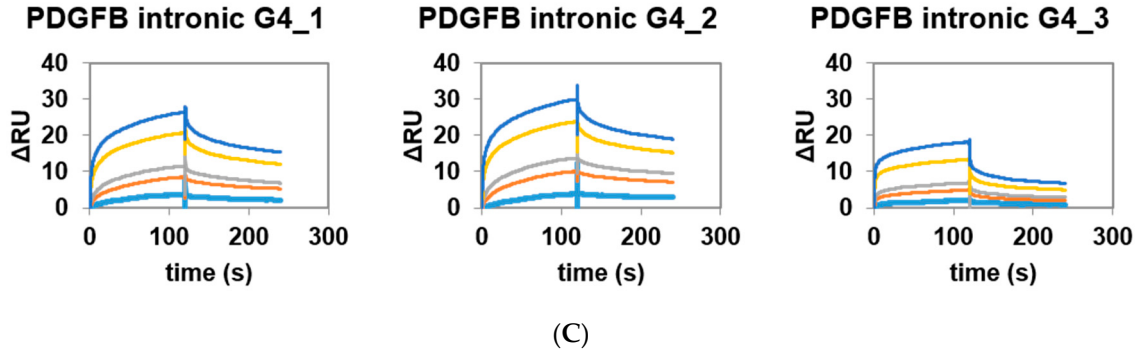


Figure S5. SPR analysis of PDGFB intronic G4_1, G4_2, and G4_3 to (A) VEGF165; (B) PDGF-AA, and (C) PDGF-BB.

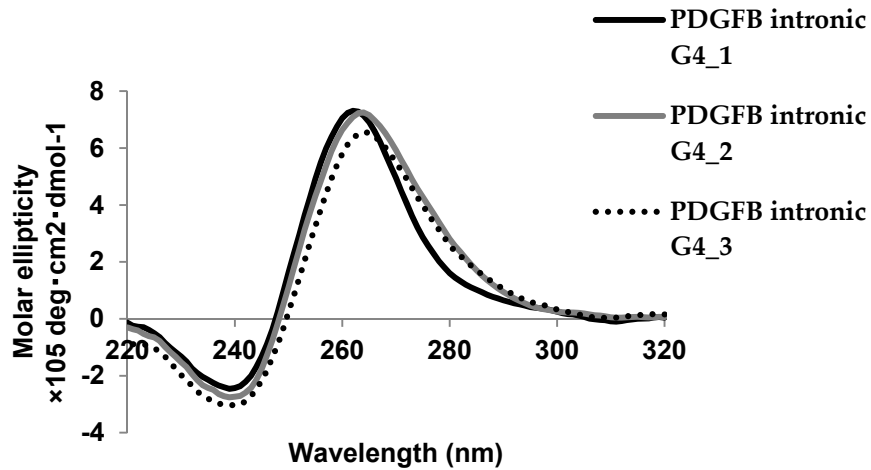
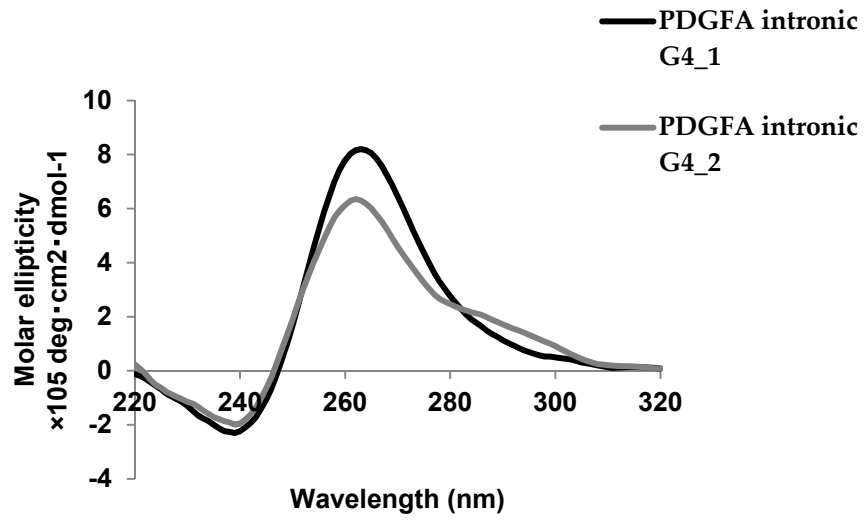


Figure S6. CD spectra of PDGFA intronic G4_1 and G4_2 (A) and PDGFB intronic G4_1, G4_2, and G4_3 (B).

Table S1. Kinetic value of G4-forming RNAs to VEGF165, PDGF-AA, and PDGF-BB.

Protein		VEGF165		
Name	k_{on} ($\times 10^4$ 1/Ms)	k_{off} ($\times 10^{-3}$ 1/s)	K_d (nM)	
VEGFA intronic G4_1	4.6	6.6	140	
VEGFA intronic G4_2	2.2	6.9	31	
VEGFA 5' UTR G4	1.2	3.7	300	
PDGFA intronic G4_1	1.2	6.1	490	
PDGFA intronic G4_2	3.4	6.8	200	
PDGFB intronic G4_1	3.5	4.6	130	
PDGFB intronic G4_2	4.5	6.5	150	
PDGFB intronic G4_3	2.6	11	440	
Protein		PDGF-AA		
Name	k_{on} ($\times 10^4$ 1/Ms)	k_{off} ($\times 10^{-3}$ 1/s)	K_d (nM)	
VEGFA intronic G4_1	11	2.3	20	
VEGFA intronic G4_2	5.3	1.0	20	
VEGFA 5' UTR G4	2.9	1.8	60	
PDGFA intronic G4_1	6.4	1.8	30	
PDGFA intronic G4_2	4.8	1.4	30	
PDGFB intronic G4_1	5.7	1.5	30	
PDGFB intronic G4_2	6.4	1.5	20	
PDGFB intronic G4_3	7.9	3.3	40	
Protein		PDGF-BB		
Name	k_{on} ($\times 10^4$ 1/Ms)	k_{off} ($\times 10^{-3}$ 1/s)	K_d (nM)	
VEGFA intronic G4_1	6.3	2.5	40	
VEGFA intronic G4_2	5.1	1.4	30	
VEGFA 5' UTR G4	3.8	4.3	110	
PDGFA intronic G4_1	8.3	2.5	30	
PDGFA intronic G4_2	8.5	2.3	30	
PDGFB intronic G4_1	7.7	3.3	40	
PDGFB intronic G4_2	8.4	2.5	30	
PDGFB intronic G4_3	7.3	4.3	60	