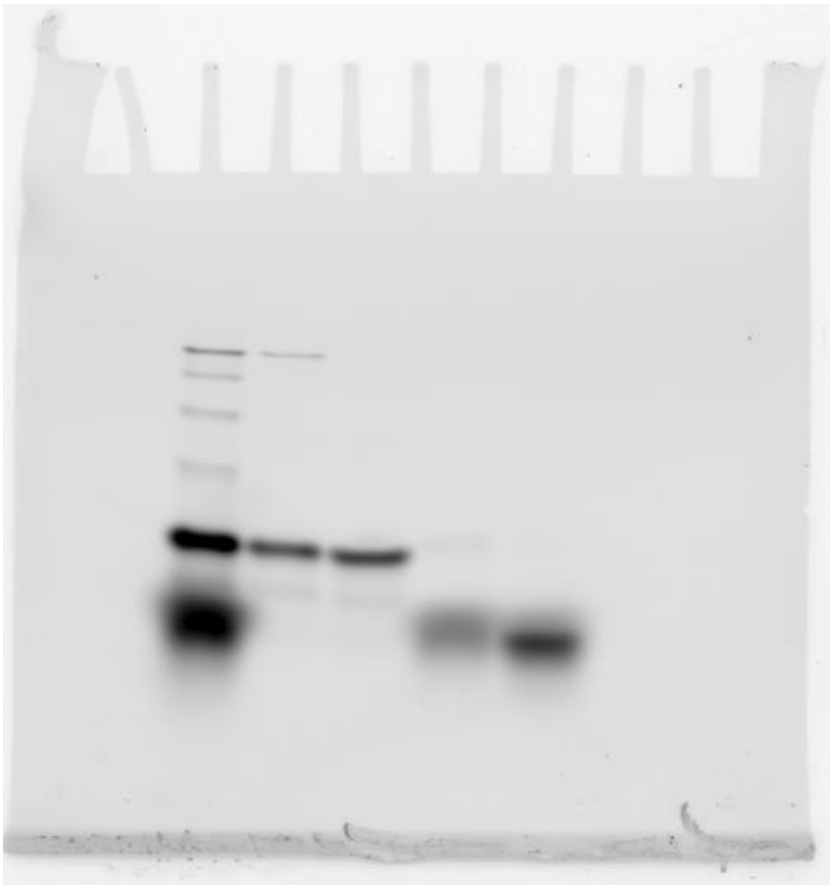
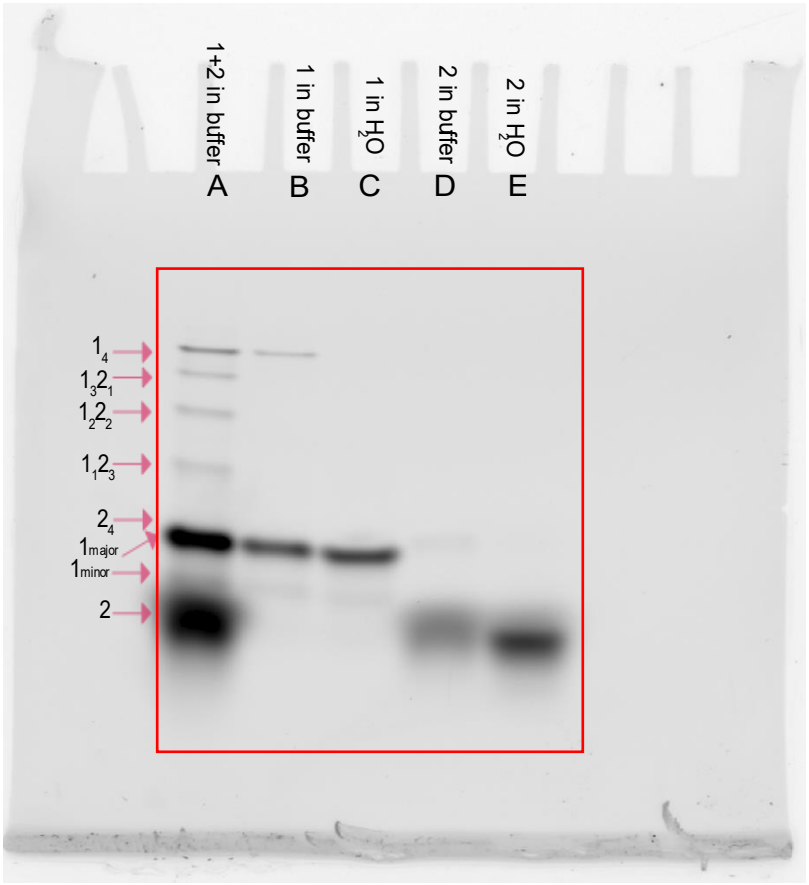
Heteromeric Guanosine (G)-Quadruplex Derived Antenna Modules with Directional Energy Transfer

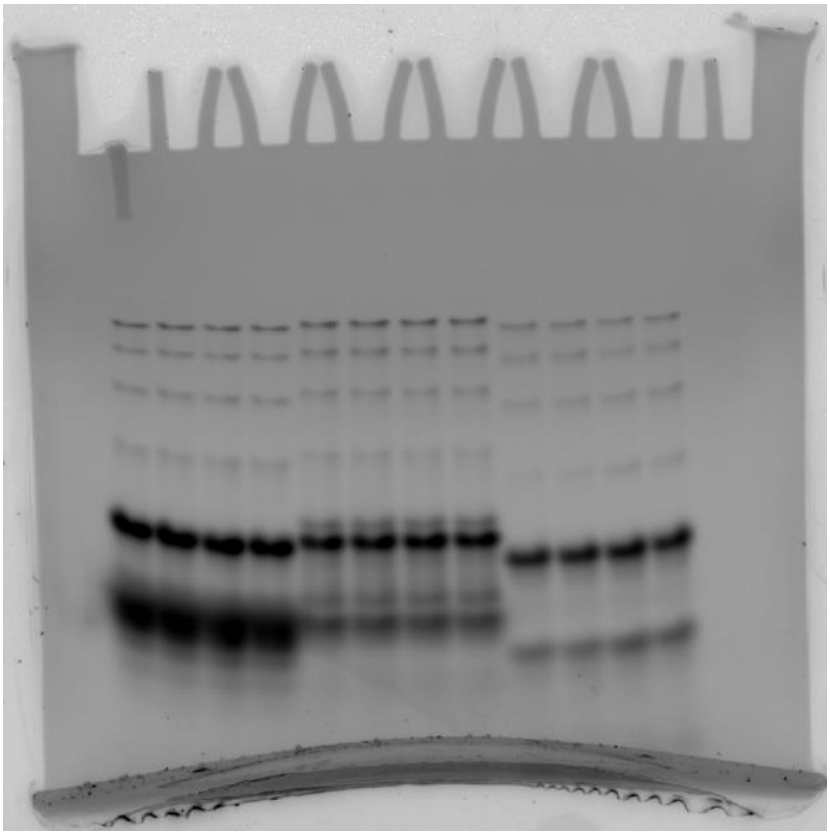
Note: All gel electrophoresis data for G-quadruplex formation were run without any control duplex DNA ladders/markers as DNA duplex markers typically do not correlate with the migration of DNA quadruplexes (which are tetramolecular and not bimolecular).



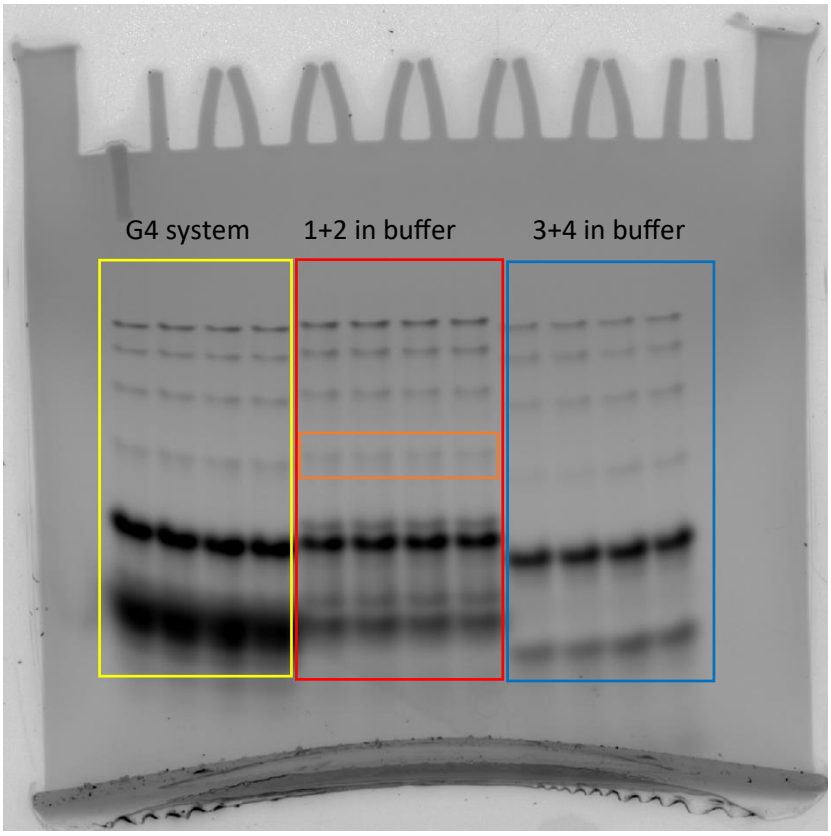
Full gel for Figure 2C-left: Unlabeled.



Full gel for Figure 2C-left: lane A; self-assembly of ODNs **1** and **2** (50 µM) in K^+ buffer resulting in single stranded ODNs as well as Gq_{hom} and Gq_{het} species. lane B; ODN **1** in K^+ buffer, lane C; ODN **1** in ultrapure water. lane D; ODN **2** in K^+ buffer, and lane E; ODN **2** in ultrapure water. Note the concentrations loaded on lane A (50 µM per ODN) is 10x more than for the control lanes.



Full gel for Figure 2C-middle: Unlabeled.

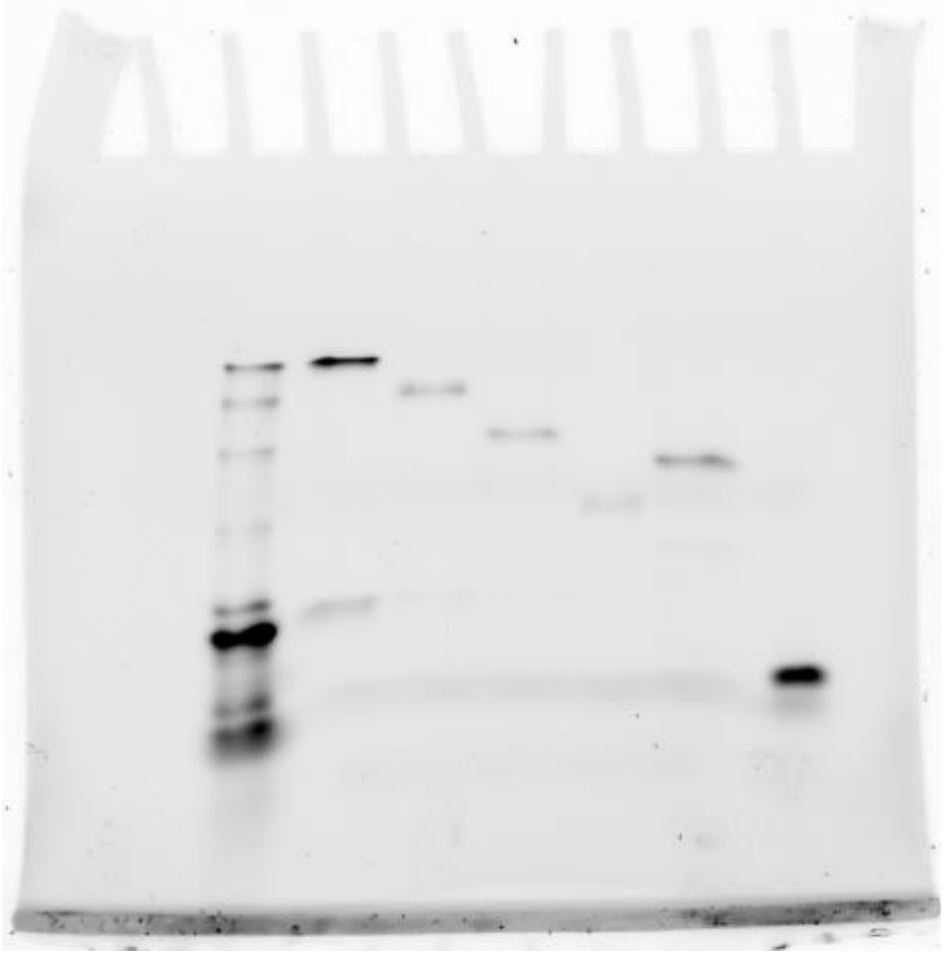


Full gel for Figure 2C-middle: Red rectangle is what is shown in the main text (Figure 2C-middle): All lanes were loaded with self-assembled solution of ODNs **1** and **2** (50µM). Here, the orange box shows the band corresponding to **GqI**.

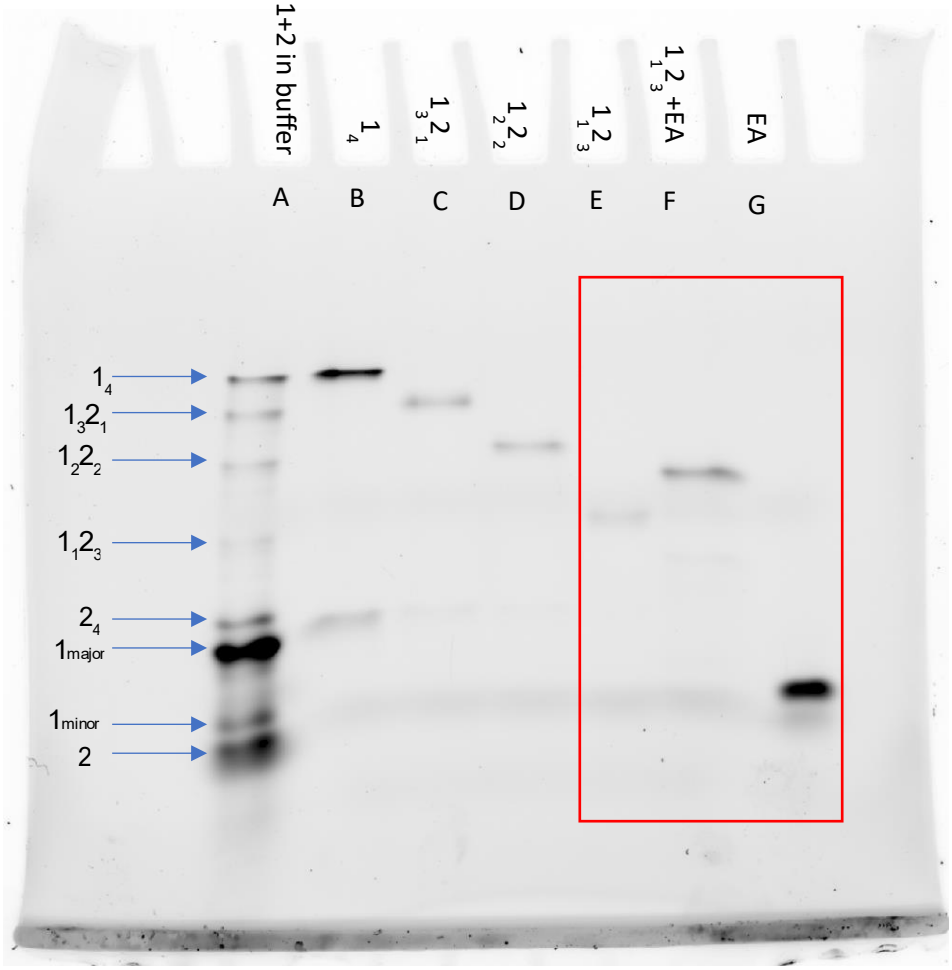
Note: For the publication quality data for gels, we try to use the middle lanes in order to avoid curving of the bands toward the edges. However, to use all the lanes economically, we also ran other quadruplex systems in this gel [see blue and yellow rectangles].

Blue rectangle: All lanes were loaded with self-assembled solution of ODNs **3** and **4** (50µM).

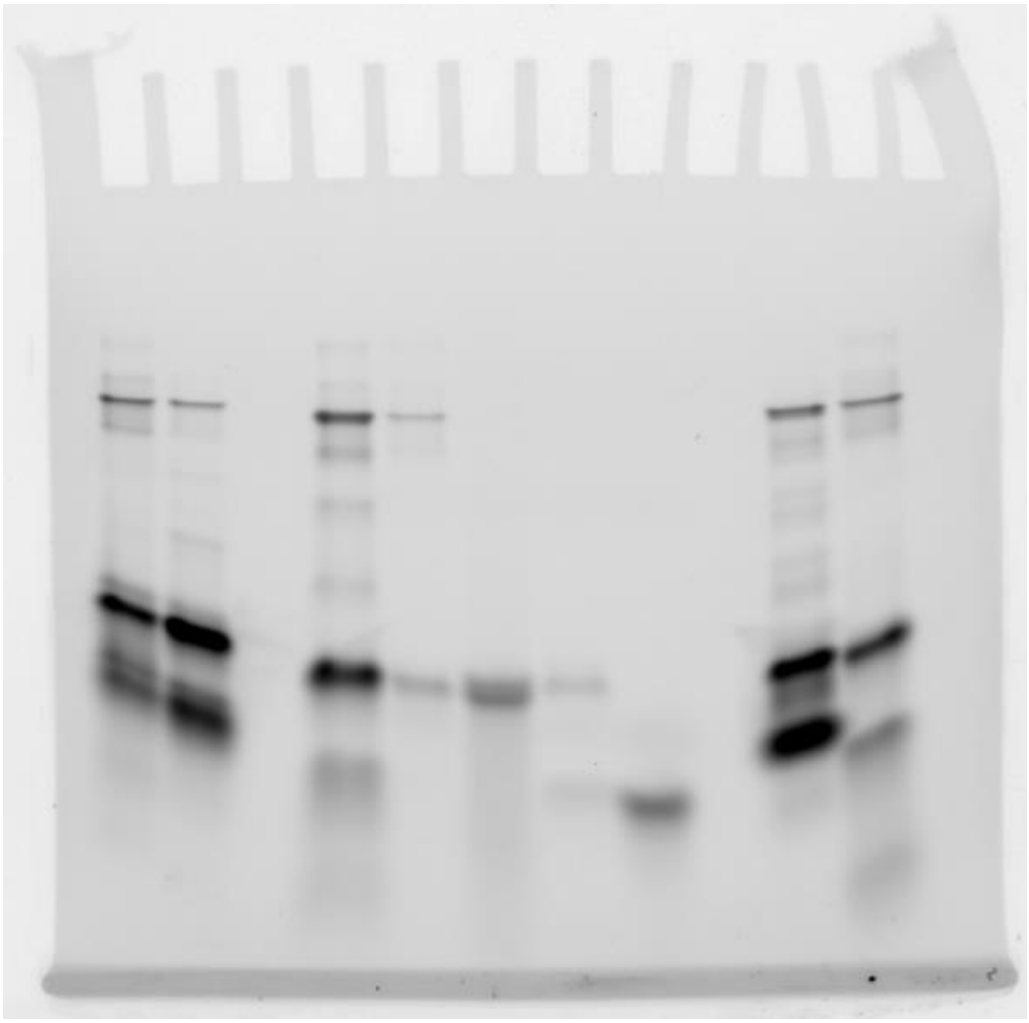
Yellow rectangle: All lanes were loaded with self-assembled solution of long and short G rich sequences (having 4 consecutive Gs instead of 5 consecutive Gs) each containing 2 fluorescein dyes. This is for a different system and the data is not pertinent for this paper, which only focuses on the self-assembly of 5G systems.



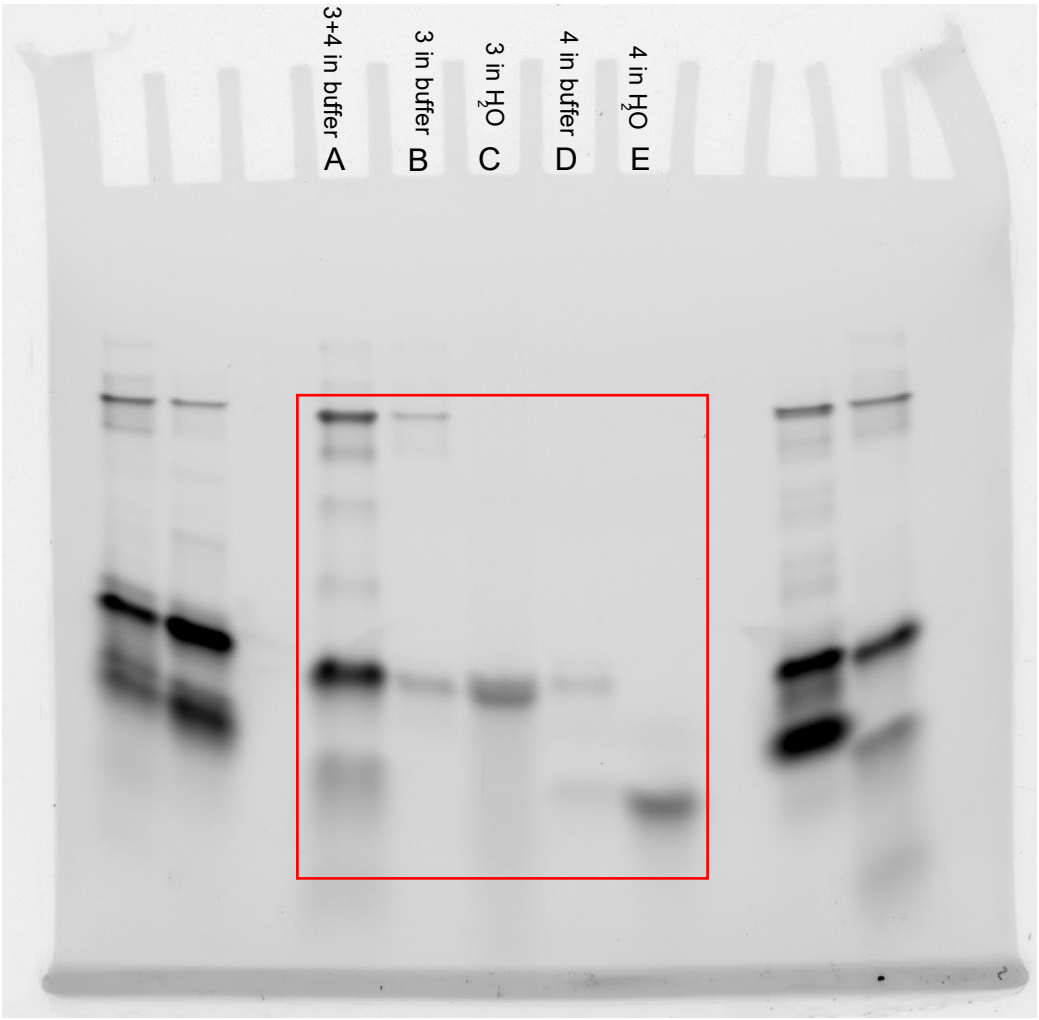
Full gel for Figure 2C-right: Unlabeled.



Full gel for Figure 2C-right: Analytical PAGE (lane A) conducted on self-assembled ODNs **1** and **2**. Lane B; the retrieved band $\mathbf{1}_4$. Lane C; the retrieved band $\mathbf{1}_3\mathbf{2}_1$. Lane D; the retrieved band $\mathbf{1}_2\mathbf{2}_2$. Lane E; the retrieved band **GqI** ($\mathbf{1}_1\mathbf{2}_3$) showing its integrity and migration. Also shown are **GqI** ($\mathbf{1}_1\mathbf{2}_3$) + **EA** (lane F), and **EA** only (lane G). Red rectangle: the part shown in the main text (Figure 2C-right). Note: the shadow that runs right before the **EA** band is likely an artifact as it is present in all the lanes.



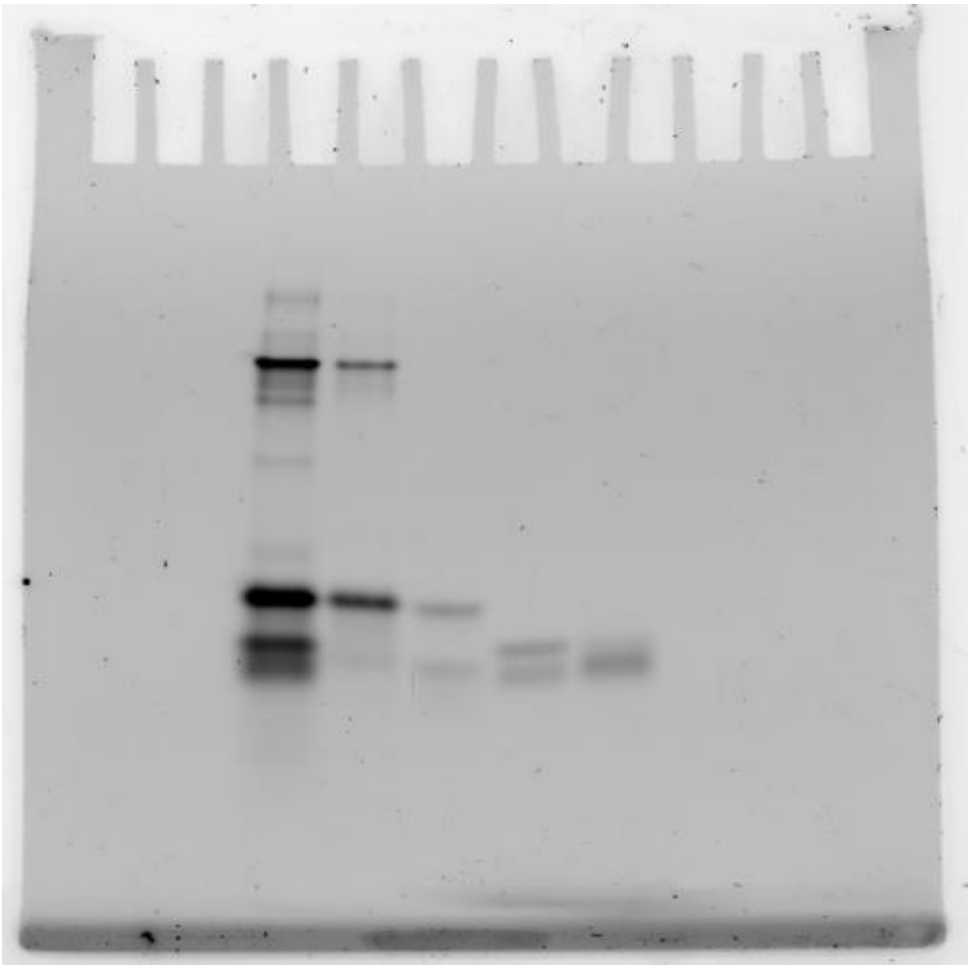
Full gel for Figure S18: Unlabeled.



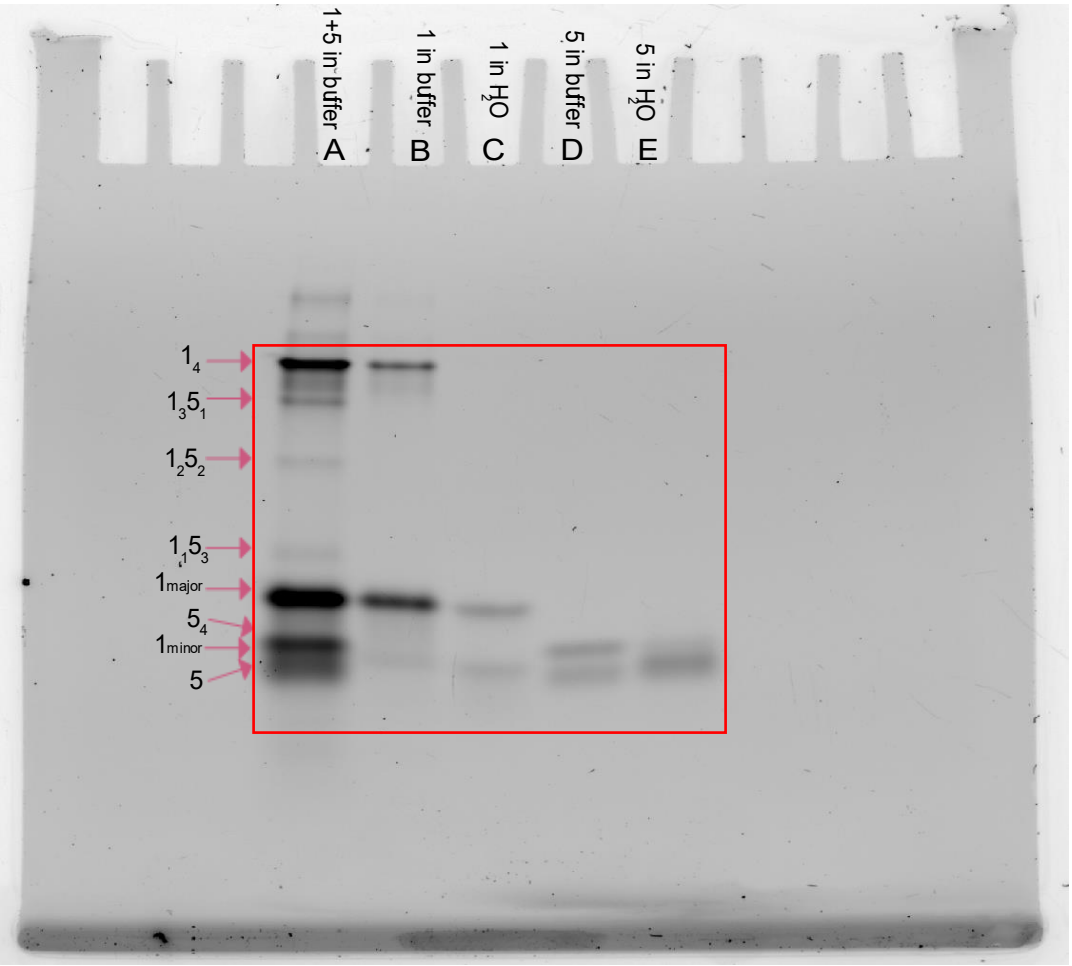
Full gel for Figure S18: Red rectangle: PAGE studies to identify **GqII** ($\mathbf{3}_1\mathbf{4}_3$): lane A; self-assembly of ODNs **3** and **4** in K^+ buffer, lane B; ODN **3** in K^+ buffer, lane C; ODN **3** in deionized water, lane D; ODN **4** in K^+ buffer, and lane E; ODN **4** in deionized water). Note the concentrations loaded on lane A (50 µM per ODN) is 10x more than for the control lanes. Gel electrophoresis was performed in TBA buffer containing 33 mM KCl.

Note: There is a small amount of higher order structures also visible when ODN **3** is used (for example see slow migrating species in lanes A and B, above the red box). Because we are focusing on extracted, discrete **GqII** ($\mathbf{3}_1\mathbf{4}_3$) species, we did not discuss this aspect. Further, these bands are not always present in the gel and maybe kinetically trapped species.

Note: For the publication quality data for gels, we try to use the middle lanes in order to avoid curving of the bands toward the edges. However, to use all the lanes economically, we also ran other quadruplex systems in the outer lanes. The data from these lanes are not discussed in this paper.



Full gel for Figure S20: Unlabeled.



Full gel for Figure S20: PAGE studies to identify **GqIII** ($\mathbf{1}_1\mathbf{5}_3$): lane A; self-assembly of ODNs **1** and **5** in K^+ buffer, lane B; ODN **1** in K^+ buffer, lane C; ODN **1** in deionized water, lane D; ODN **5** in K^+ buffer, and lane E; ODN **5** in deionized water). Note the concentrations loaded on lane A (50 µM per ODN) is 10x more than for the control lanes. Gel electrophoresis was performed in TBE buffer containing 33 mM KCl.

Note: There is a small amount of higher order structures also visible when ODN **1** is used (for example see slow migrating species in lanes A and B, above the red box). Because we are focusing on extracted, discrete **GqIII** ($\mathbf{1}_1\mathbf{5}_3$) species, we did not discuss this aspect. Further, these bands are not always present in the gel and may be kinetically trapped species. For instance, see figure 2C-left lanes A and B (page 3 of this document), where the bands corresponding to these higher order structures are not present.