

Figure S15: Additional characterization of the enhancer *Dlx12b*

Mouse ES cell lines E14 (B-B'' & E-E'') and J14 (A-A'', C-D'' & F-F'') carrying enhancer *Dlx12b*- β g-*mCherry* were differentiated with our ES-MGE protocol. Expression of *Dlx12b*- β g-*mCherry* (red) was examined on D11, D13, and D15 together with other markers (shown in green): (A) *Nkx2-1*, (B) *Dlx2*, (C) *Foxg1*, (D) *Islet1*, (E) *Olig2*, (F) *Calbindin*. Scale bar, 200 μ m.

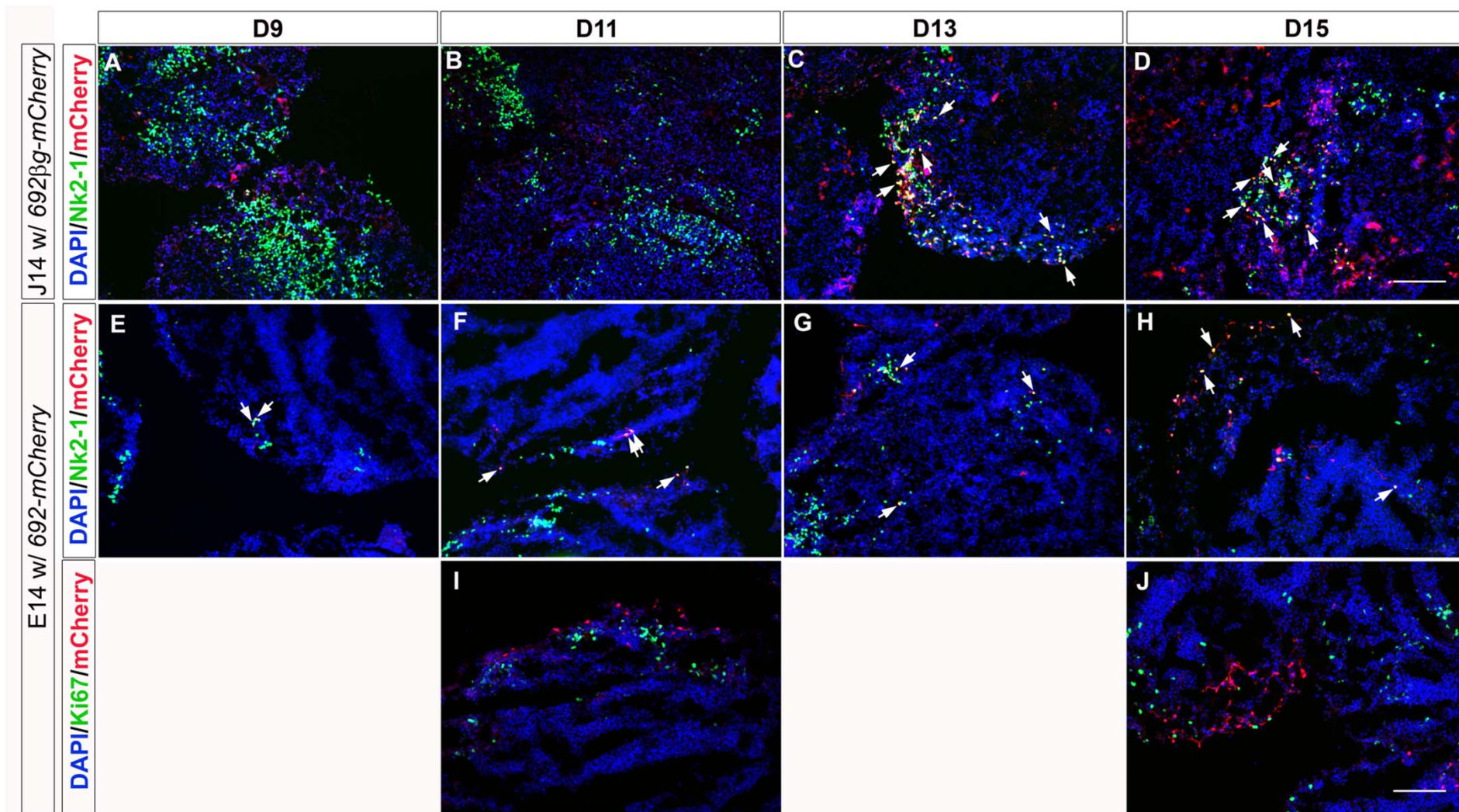


Figure S16: Additional characterization of the enhancer 692

(A-D) Mouse ES cell lines J14 carrying enhancer 692- β g-mCherry were differentiated with our ES-MGE protocol. Expression of 692- β g-mCherry (red) was examined together with Nkx2-1 (shown in green) on D9, D11, D13, and D15. Scale bar, 200 μ m. (E-J) Mouse ES cell lines E14 carrying 692-mCherry were differentiated with our current MGE protocol. Expression of 692-mCherry (red) was examined with Nkx2-1 (E-H) and Mki67 (I, J) (shown in green) on days indicated. Scale bar, 100 μ m. White arrows indicate co-labeling of respective markers shown.

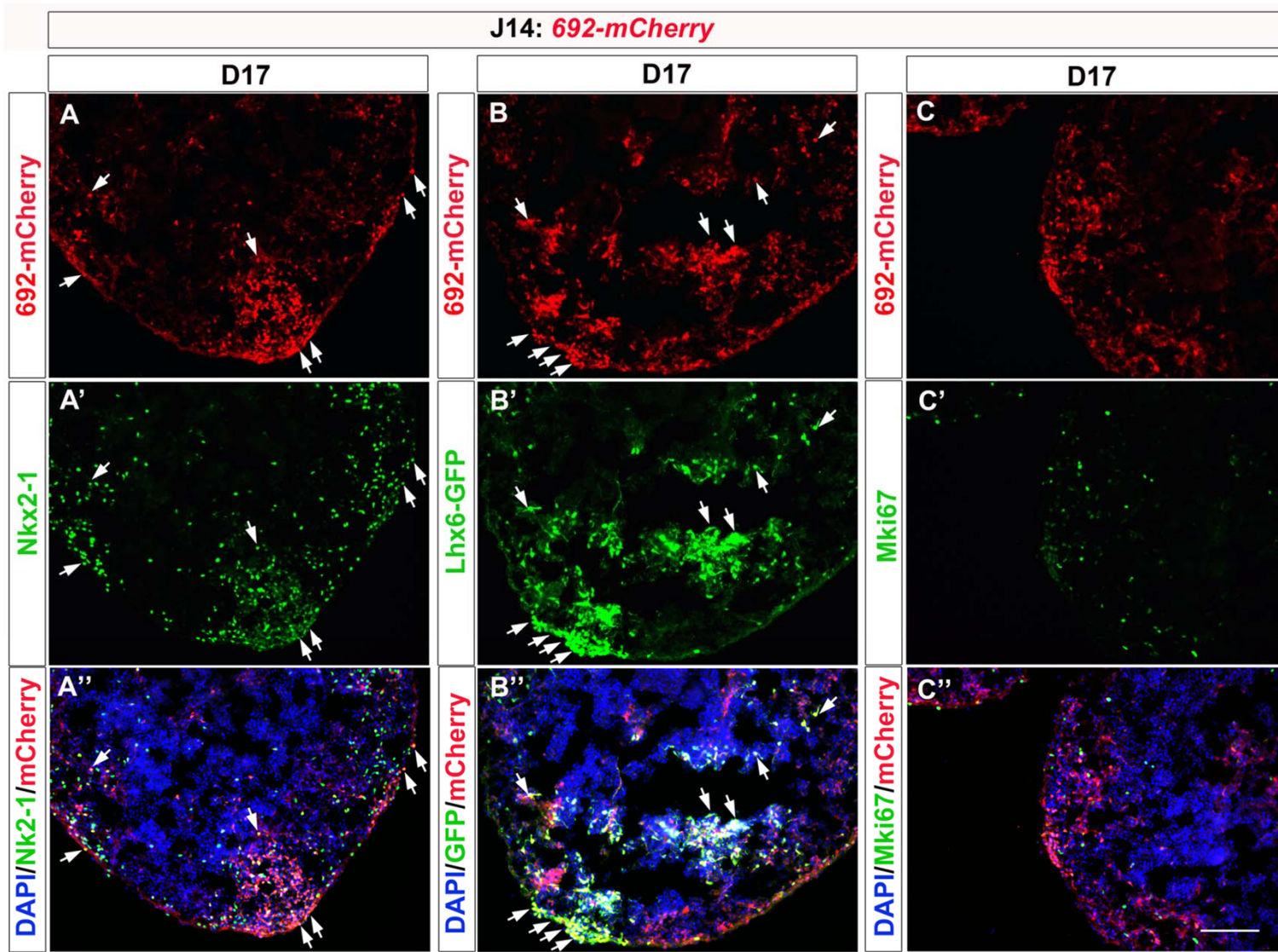


Figure S17: Additional characterization of the enhancer 692

Mouse ES cell lines J14 carrying enhancer 692-mCherry were differentiated with our ES-MGE protocol. Expression of 692-mCherry (red) was examined on D17 together with other markers (shown in green): (A) Nkx2-1, (B) Lhx6-GFP, (C) Mki67. White arrows indicate co-labeling of respective markers shown. Scale bar, 100µm.

J14: *1056-βg-mCherry*

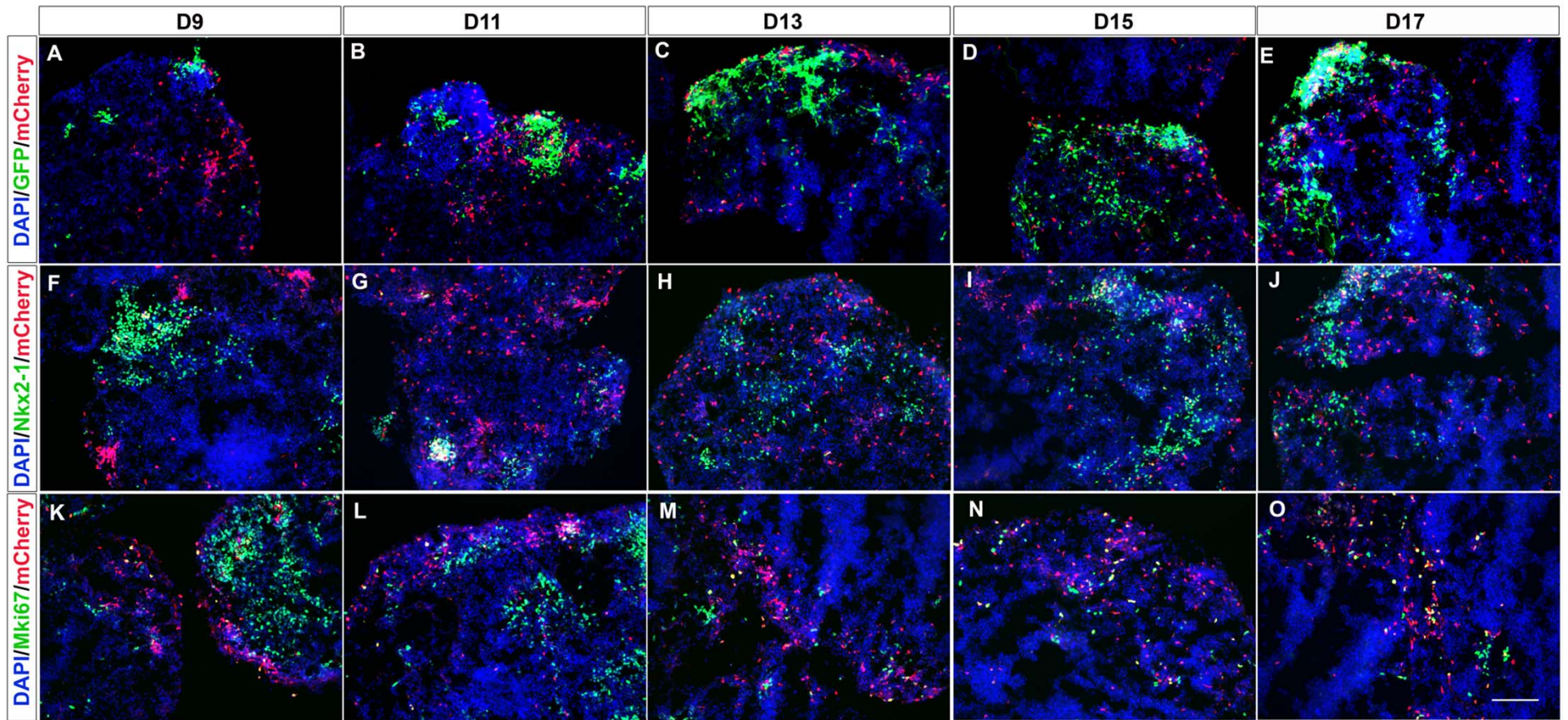


Figure S18: Additional characterization of the enhancer 1056

Mouse ES cell line J14 carrying enhancer *1056-βg-mCherry* were differentiated with our ES-MGE protocol. Expression of *1056-βg-mCherry* (red) was examined on D9, 11, 13, 15 and 17 together with other markers (shown in green): (A-E) *Lhx6-GFP*, (F-J) *Nkx2-1*, (K-O) *Mki67*. Scale bar, 100μm.

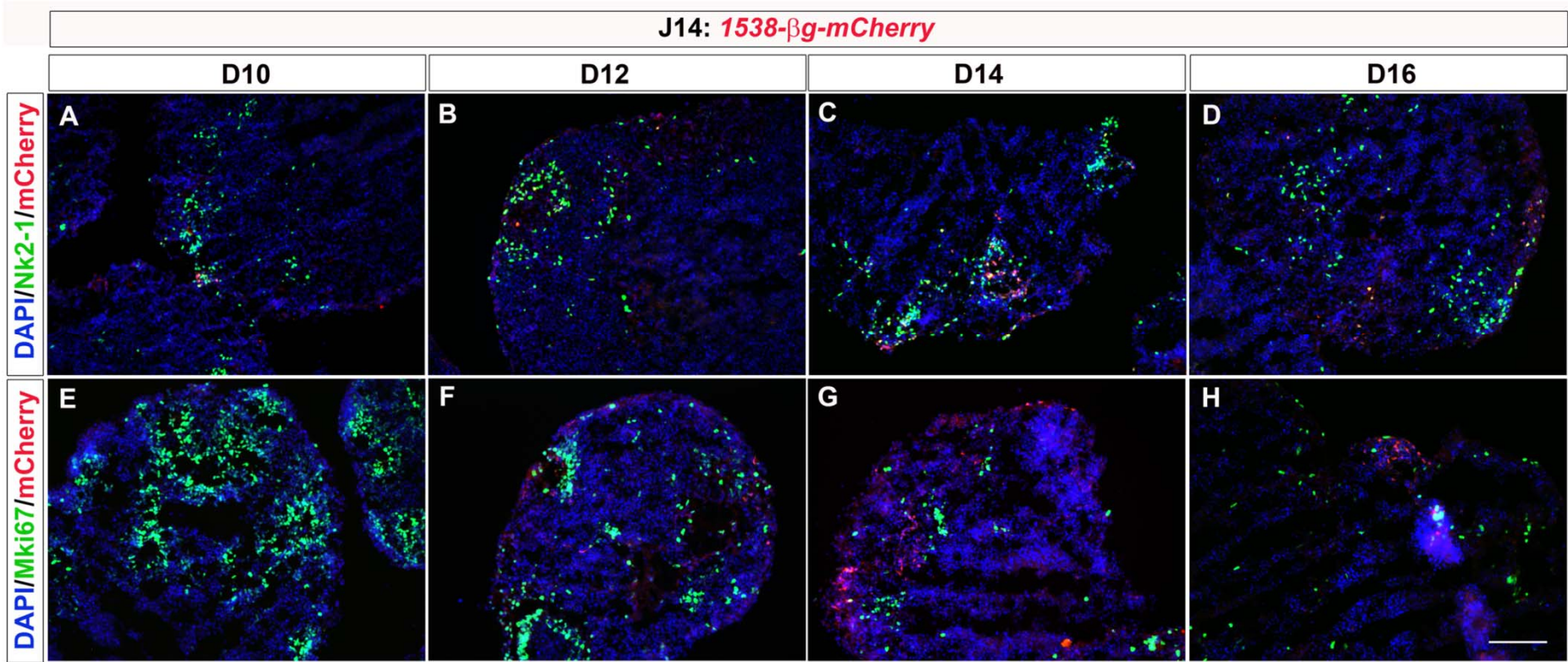


Figure S19: Additional characterization of the enhancer 1538

Mouse ES cell line J14 carrying enhancer *1538-βg-mCherry* were differentiated with our ES-MGE protocol. Expression of *1538-βg-mCherry* (red) was examined on D10, 12, 14 and 16 together with other markers (shown in green): (A-D) Nkx2-1, (E-H) Mki67. Scale bar, 100μm.