Fig 1A Fig 1B 2 h Tandem 3'UTRs Alternative Last Exons (ALEs) TED-seq Poly(A) tail length Fig 1C Fig 1D spike-in PAL standards 1.00 Cumulative fraction PAL A40 A80 Ref_1 Ref 2 A120 A160 0.00 50 100 150 200 250 PAL(nt) Fig 1E Fig 1F de novo PASs in 3'UTR+1kb 4000 5000 Number of genes Number of PAS sites Vnmper of de novo poly(A) Poly(A) tail length within 10 nt b/w 10 nt and 300 nt beyond 300 nt 1000 0 -500 0 500

Relative position from the reference PAS Position relative to the UCSC PAS sites 8 9 10 11 12 13 14 15>15 Number of poly(A) sites per gene Fig 1G Fig 1H De novo De novo -161 nt ANTXR1