Title: mRNA processing Note: New participating members shown at each step **Last modified:** 10/17/2013 right click on blue text for detailed information Organism: Anopheles gambiae (2) Processing of Intron-Containing Pre-mRNA (1) mRNA Capping mRNA 3'-end processing (2c) mRNA splicing (major pathway) CF I CPSF Poly(A)-binding protein II CstF AgaP AGAP007810 P AGAPOOT P AGAPOO2 P AGAP011 P_AGAP005 AgaP_AGAP003460 Formation of the Spliceosomal E complex P_AGAP002 P AGAPO10 AgaP AGAP005021 CF II Poly(A) polymerase alpha (2a) Internal methylation of mRNA U1 snRNP U2AF P AGAP001 AGAP004 RNA helicase A P AGAP007 AgaP AGAP005142 Cap Binding AgaP AGAP002956 PAPOLA U1 snRNA AgaP AGAP006599 CPSF4 P AGAPOO3 AgaP AGAP001195 AgaP AGAP006755 AgaP AGAP002908 AgaP AGAP011637 NCBP2 mRNA polyadenylation Serine/Argenine Rich Proteins(SR) Cleavage of mRNA at the 3'-end Additional Factors Methylation of mRNA snRNP Sm core complex AgaP AGAP010496 AgaP AGAP004592 AgaP AGAP001645 AgaP AGAP008577 CstF mRNA capping AgaP AGAP002895 ge at the 3'-Splice-Site and Exon Ligation AgaP AGAP005523 SNRPE AgaP AGAP008303 SFRS2 Poly(A)pb II AgaP AGAP006108 AgaP AGAP011494 AgaP AGAP007246 AgaP_AGAP002658 AgaP AGAP007325 SFRS9 Poly(A) pol (2b) Formation of pre-mRNPs SF4 AgaP_AGAP002947 AgaP_AGAP003936 AgaP AGAP002706 heterogeneous nuclear ribonucleoproteins SFRS5 AgaP AGAP012380 AgaP AGAP002374 HNRPH1 HNRPA3P1 HNRPH2 Formation of the Spliceosomal A complex AAUAA HNRPA2B1 HNRPK U2 snRNP AgaP AGAP012054 AgaP AGAP006668 Additional Factors SR-proteins Rngtt (capping enzyme) U2 snRNPs splicing factor SF3B CF II RNU2 HNRPC AgaP AGAP001460 SFRS4 AgaP AGAP008925 CFI ATP P AGAP007 P AGAPOOO AgaP_AGAP000399 AgaP AGAP001419 splicing factor SF3A RNA helicase AgaP AGAP005298 SNRPB2 P AGAP006 P AGAP011 P_AGAP008 AgaP AGAP006885 P_AGAP005 SF3b14b AGAP011 AgaP AGAP008925 P AGAPO01 Primary RNA transcript **Accessory Proteins** P AGAP009 SF3A3 AgaP AGAP003945 P AGAP011 snRNP Sm core complex Internal methylation of mRNA SR protein kinases splicesome associated helicases RNAi pathway Formation of the Spliceosomal B complex P_AGAP004 Formation of pre-mRNPs CLK1 DICER1 CLK2 DDX20 U4:U5:U6 tri-snRNP complex Lariat Formation and 5'-Splice Site Cleavage Misc. Additional Factors P AGAPOOC P AGAP007 U4 snRNP U6 snRNP U5 snRNP P AGAP002 CLK4 AGAP011 CUGBP1 P AGAP001 U5 snRNA U5-116KD U4 snRNA PRPF4B AGAP009 pre-mRNA P AGAP008 AGAP005 SSFA1 aP AGAP0082 SSFA1 P AGAP005 NONO mRNA splice site selection AGAP002 aP AGAP0095 SSFA1 Formation of the Spliceosomal E complex aP AGAP0021 SRPK2 P AGAP004 aP AGAP0049 P AGAP005 aP AGAP0056 P AGAP006 PSKH1 P_AGAP003 Formation of the Spliceosomal A complex AGAP009 P AGAP004 SR protein phosphatases PTBP2 snRNP Sm core complex P AGAPOOS P_AGAP006 Formation of the active Spliceosomal C complex U2 snRNP hnRNP regulators P AGAPOOS U4 Additional SR proteins P AGAP003 P_AGAP008 U1 snRNP P AGAP003 HRMT1L1 SNRPN SFRS10 PCBP2 P AGAP002 U4/U6 P AGAP002 GU-P_AGAP003 **Putative Alternative Splicing** SR-binding sites SR-binding sites SFRS14 Regulators SR-phosphatases P AGAP002 SNRPN P AGAP001 P AGAPOOS Formation of the Spliceosomal B complex (P) Formation of the Spliceosomal C complex FUSIP1 Regulation of **SR-proteins** SR-proteins **Uternative Splicing** P AGAP005 SR-repressor proteins P AGAP004 FUSIP1 SR-kinases Kinases Phosphorylating RS domains?