

ScFET3	1	MTN-----ALLSIAVL-----LF	13
LAC1	1	MEN-----LGFLIIST--FILLFTTL-----L	20
LAC2	1	MVT-----WVLNLYLLV--AFLFAISY-----NI	21
LAC3	1	MES-----FRRFS--LLSFIALA-----YF	19
LAC4	1	MGS-----HMVWFLF--LVSEFFSV-----F	18
LAC5	1	MDV---TKSLLCFISFV--AFLLFSSV-----22	
LAC6	1	MTS---SAVPSLFRIS--FLLFTLQV-----MN	23
LAC7	1	MEG-VRVP-----IACALILL-----AI	17
LAC8	1	MPR-----LHHYLS--NQAFLVLL-----LF	19
LAC9	1	MPR-----VHHSLS--NQAFLVLL-----LF	19
LAC10	1	M-----VFPIR--ILVLFALL-----AF	16
LAC11	1	MKMG-----FLF--LFCYLLAF-----LG	17
LAC12	1	MTT-----VHTFS--ILLFFCSL-----FS	18
LAC13	1	MEQ-----LRPF--FLLLLAI-----FV	15
LAC14	1	MEFKLNIPNTI IKTLQT--IVFFLFVL-----LA	27
LAC15	1	MSH-----SFFNFLFI-----SL	13
LAC16	1	M-----1	
LAC17	1	MAL-----QLL--LAVFSCVL-----LL	16
AO	1	MMPRKRSSDTVHVFNLM--VLCFIALF-----FS	27
LPR1	1	MES-----LLCRRRIKR--VMVLIIADTWLRSTCG---ELEDQLFEVGKLMKFVDDLPMMPRLYGFNVS	60
LPR2	1	MEP-----SRRRMTRDMLLLIVTMAWLVTGDEGGIKQEERLFNLGKLEMFVDKLPHPITLHG	62

ScFET3	14	SMSLSLAQAETHTFENWTTGWY----RNVDGL-KSRPVITCNGQFFWPDITVNGKDRVQIYLTNGMNNTN-	77
LAC1	21	PYSSASTTRRFHENVEW-----KKVTRLCHTKQLLTVNGQYPGPTVAVHEGDIVEIKVTNR-IAHN-	80
LAC2	22	DAASAGITRHYQFDIQL-----KNITRLCKTKTIVTVNGKFPGPRTVAREGDNLOIKVVNH-VSNN-	81
LAC3	20	AFLASAEHHVHQEVITP-----TPVKRLCORTHQSTIVNGQYPGPTLVVRNGDSLAIITVINR-ARYN-	79
LAC4	19	PAPSESMVRHYKENVVM-----KNVTRLCSSKPTVTVNGRYPGPTIYAREDDTLLIKVVNH-VKYN-	78
LAC5	22	--AEANKAHHHEFIIQA-----TKVKRLCETHNSITVNGMFFPGPMLVVNNGDTLVVKVINR-ARYN-	80
LAC6	24	IGRIGAATRFYQFKVQT-----IRLTRLCQTNEIVTVNKKFPGPAISAQEDDRIVIKVINM-TPYN-	83
LAC7	18	SSITSASIVEHTENVQN-----LTVSRLCRKQVITVNGSLPGPTIRVKEGDSLVIHVLNH-SPHN-	77
LAC8	20	SSIASAIVVEHVLHIQD-----VVVKPLCKEQIIPAANGSLPGPTINVREGDTLVVNVINN-STYN-	79
LAC9	20	SSIASAIVVEHVLHVVD-----VVVTPLCKEQMPIVNGSLPGPTINVREGDTLVVHVINK-STYN-	79
LAC10	17	PACVHGAIKRYTFENVVT-----KQVTRICSTKQIVTVNGKFPGPTIYANEDDTILVNVVNN-VKYN-	76
LAC11	18	YSPVDAAVKKYQEDVQV-----KNISRICNAKPIVTVNGMFFPGPTVYAREGDRVIINVTNH-VQYN-	77
LAC12	19	ASLIIIAKVQHHDVEVIQE-----TPVKRLCKTRNAITVNGMFFPGPTLEVNNGDTLEVKKVHN-ARYN-	78
LAC13	16	ASLVNAEVHFHEFVIQE-----TPVKRLCRVHNSITVNGQFPGPTLEVNRGDSLVTITAINK-ARYN-	75
LAC14	28	FQIAEAEIHHTFKIKS-----KAYTRLCNTNKILTVNGEFPGPTLKAYRGDKLIVNVINN-ANYN-	87
LAC15	14	FLYNNCIAHHYTFETVRE-----VPYTKLCSTKAILTVNSQFPGPILIKVHGDITIVNVQNR-ASEN-	73
LAC16	1	-----TNTTKLCSSKPIVTVNGQFPGPTIVAREGDTILIKVVNH-VKYN-	44
LAC17	17	PQPAFGITRHYTLEIKM-----QNVTRLCHTKSLVSVNGQFPGPKLIAREGDQVLIKVVNQ-VPNN-	76
AO	28	SVLCQGGKIRFKWEVKY-----EFKSPDCFEKLIVITINGKFPGPTIKAQQGDTIVVELKNSFMTEN-	88
LPR1	61	GIIKPAASLQIGMFSTKWKFHRDLPATPVFAYGTSRSKATV---PGPTIETVYGVDTYVTVWRNH-LPKSH	125
LPR2	63	GFLKPKSLHIGMEFFKKWKFHRDLPATPVFAYGTSKRSATV---PGPTIEAVYGVDTYVTVWRNH-LPLHH	127

ScFET3	77	-----TSMHFGHLEFNGTASMDGVPFLTQCPIAPGSTM---LYNFTVDYNVGTYY	125
LAC1	80	-----TTIHWHGRLQYRTGWADGPAYITQCPIRSKQSY---TYRFKVEDQRGTLWW	128
LAC2	81	-----ISIHWHGRLRSGWADGPSYVTQCPIRMGQSY---VYNFTVTGQRGTLWW	129
LAC3	79	-----ISIHWHGRLRLNPWADGPEYITQCPIRPGQTY---TYRFKIEDQEGTLWW	127
LAC4	78	-----VSIHWHGVQRVRTGWADGPAYITQCPIQPGQVY---TYNYTLTGQRGTLWW	126
LAC5	80	-----ITIHHWHGVQMRRTGWADGPEFVTQCPIRPGSSY---TYRFTIQGQEGTLWW	128
LAC6	83	-----TTIHWHGIGKQRSCWYDGPSYITQCPIQSGQSF---TYNFKVAQKGTFLW	131
LAC7	77	-----ITIHHWHGIFHKLTVWADGPSMITQCPIQPGQRY---AYRFNITGQEGTLWW	125
LAC8	79	-----VTIHWHGVFQLKSVWMDGANMITQCPIQPGYNF---TYQFDITGQEGTLWW	127
LAC9	79	-----VTIHWHGVFQLKSVWMDGANMITQCPIQPSNNE---TYQFDITGQEGTLWW	127
LAC10	76	-----VSIHWHGIRQLRTGWADGPAYITQCPIKPGHSY---VYNFTVTGQRGTLWW	124
LAC11	77	-----MSIHWHGRLQYRNGWADGPAYITQCPIQTGQSY---LYDFNVTGQRGTLWW	125
LAC12	78	-----ITIHHWHGVQRIRTGWADGPEFVTQCPIRPGKSY---TYRFTIQGQEGTLWW	126
LAC13	75	-----ISLHWHGIRQMRNPWADGPEYITQCPIQPGGSY---TYRFTMEDQEGTLWW	123
LAC14	87	-----ITLHWHGARQIRNPWSDGPEYITQCPIRPGESY---VYRIDLKVEEGTLWW	135
LAC15	73	-----ITMHHWHGVQPRNPWSDGPEYITQCPIRPGSDF---LYKVFISIEDTTVWW	121
LAC16	44	-----VSIHW-----TGWADGPAYITQCPIQPGQNY---LHNFTITGQRGTLWW	85
LAC17	76	-----ISLHWHGIRQLRSGWADGPAYITQCPIQTGQSY---VYNFTVTGQRGTLWW	124
AO	88	-----VAVHWHGIRQIGTPWFDGVEGVITQCPILEGEVF---IYQFVVD-RPGTYM	135
LPR1	126	ILPWDPTISPATPKHGGIPTVVHLHGGIHEPTSDGNADAWFTAGFRETGPKWTKTTLHYENKQOPGNM	195
LPR2	128	ILPWDPTISPAPKHGGIPTVVHLHGGIHEPTSDGNADSWFTAGFKETGSKWTKKTTTHYVKNQOPGNM	197

ScFET3	126	HSHTDQGYED---GMKGLFIKDDSPF	YDYD-----EELSLSLSEWYHDL-VTDITKSFMSVYN	180
LAC1	129	HAHHSWQ-RAS---	VYGAFLIYPR--QP-YPFS-GSHIQ--SELPILIGEWVND--VDNVEKAMMK---	183
LAC2	130	HAHIQWM-RAT---	VYGPLIILPKLHQP-YFPF-KPY---KQVPILFGEWFNAD-PQAVVQQAALQ---	184
LAC3	128	HAHSRWL-RAT---	VYGALIIYPRIGSE-YPFS-MPK---RDIPILIGEWVDRN-PMDVLKQAQF---	182
LAC4	127	HAHILWL-RAT---	VYGALVILPKRGVP-YFPF-KPD---NEKVIVLGEWVKSD-TENINEALK---	181
LAC5	129	HAHSSWL-RAT---	VYCSLLVFPPACSS-YPFT-KPH---RNVPLILGEWVDAN-PVDVLRRESIR---	183
LAC6	132	HAHFSWL-RAT---	VYGPLIVYPKASVP-YPFK-KPF---NEHTILLGEVWLKN-VVELEQHVLE---	186
LAC7	126	HAHASFL-RAT---	VYGALVIRPKSGHS-YFPF-KPH---KEVPILFGEWVNTD-VVALEEAIA---	180
LAC8	128	HAHVNNL-RAT---	LHGALVIRPRSGRP-YFPF-KPY---KEVPILFQQWWDTD-VRLIQ-----	177
LAC9	128	HAHVNNL-RAT---	IHGALVIRPRSGRP-YFPF-KPY---KEVPLIFQQWWDTD-VRLLE-----	177
LAC10	125	HAHVLWL-RAT---	VHGALVILPKLGLP-YFPF-KPH---REEVILIGEWVKSD-TETVINEALK---	179
LAC11	126	HAHILWL-RAT---	VYGAFLILPAPGKP-YFPF-QPY---QESNIIIGEWVNDK-VETAVNQANQ---	180
LAC12	127	HAHSSWL-RAT---	VYGALIIHPTPGSS-FPFP-KPD---ROTALMLGEWVNDAN-PVDVINQATR---	181
LAC13	124	HAHSRWL-RAT---	VYGALVIRPPLSSPHYFPFVLPK---REITLLIGEWVDRN-PMDVLNLQAQF---	180
LAC14	136	HAHSQWA-RAT---	VHGAFIVYPKRGSS-YFPF-KPH---REIPLILGEWVKKENIMHIPGKANK---	191
LAC15	122	HAHSSWT-RAT---	VHGLIFVYPRPPQI-LPFP-KAD---HEVPILIGEWVKRD-VREVVEEFVR---	176
LAC16	86	HAHILWL-RAT---	VHGALVILPKLGVF-YFPF-KPY---KEKTIVLSEWVKSD-VEELINEASR---	140
LAC17	125	HAHISWL-RST---	VYGPLIILPKRGVP-YPFA-KPH---KEVPMIFGEWFNAD-TEALIRQATQ---	179
AO	136	HSHYGMQ-RES---	GLIGMIQVSPAPTEP-EPFT-YDY---DRNFLITDQVHKS---MSEKATG---	187
LPR1	196	HDHAMGLTRVNLLAGLVGAYILRHHAVES-	PFQ-LETGDEFDRPLIIFDRSFRKD-GSIYMNA-----	255
LPR2	198	HDHAAGLTRVNLLAGLLGSYILRHSSVES-	PLR-LPTGREFDRPLVIFDRSFRKD-GSIYMNA-----	257

ScFET3	181	PTGAPF-----	IPQNLIVNNTMN-----LTWEVQPDITYLL	211
LAC1	183	TGAGAK-----	VSDAYTLNGLPGPLYPCSKDT-----FTATVDAGKTYLL	224
LAC2	184	TGAGPN-----	ASDAHTFNGLPGLYNCSKDT-----YKLMVKPGKTYLL	225
LAC3	182	TGAAAN-----	VSDAYTINGQPGDLYRCSRAGT-----IRFPIFFGETVOL	223
LAC4	181	SGLAPN-----	VSDSHMINGHPGPVRNCPSSQG-----YKLSVENGKTYLL	221
LAC5	183	TGGAPN-----	NSDAYTINGQPGDLYKCSSQDT-----TVVPINVGETILL	224
LAC6	186	SGGPPP-----	PADAFTINGQPGPNYNCSKDV-----YEIQIVPRKIYLL	227
LAC7	180	TGVPPN-----	NSDAYTINGPCNLYPCKSDRM-----FSLNVVKGKRYLL	221
LAC8	177	LRPAP-----	VSDAYLINGLAGDSYPCSENRM-----FNLKVVQGKTYLL	217
LAC9	177	LRPAP-----	VSDAYLINGLAGDSYPCSKNRM-----FNLKVVQGKTYLL	217
LAC10	179	SGLAPN-----	VSDAHVINGHPGFVPNCPSSQGN-----FKLAVESGKTYML	220
LAC11	180	LGAPPP-----	MSDAYTINGKPGPLFPCSEKHT-----FVIEAEAGKTYLL	221
LAC12	181	TGAAPN-----	ISDAYTINGQPGDLYNCSKDET-----VVVPINSGETSLL	222
LAC13	180	TGAAPN-----	ISDAYTINGQPGDLYRCSQDET-----LRFLVSGSEIVLL	221
LAC14	191	TGGEPN-----	ISDSYTINGQPGYLYPCSKPET-----FKITVVRGRRYLL	232
LAC15	176	TGGAPN-----	VSDALTINGHPGFLYPCSKSDT-----FHLTVGKGTYRI	217
LAC16	140	ICTAPS-----	ASDAHTINGHSGSISNCPSSQS-----YGLPVRAGKTYML	181
LAC17	179	TGGGPN-----	VSDAYTINGLPGLYNCSAKDT-----FRLRVKPGKTYLL	220
AO	187	LASIPF---KWVG--	EPQSLMIQGRG--RFNCSSNLTTPPSLVSGVCNVSADCSRFLITVIPGKTYRL	249
LPR1	255	TGNNPSIHQWQPEYFGD	VIIVNGKAWPRLN-----VRRRKRYF	294
LPR2	257	TGNNPTIHPQWQPEYFGDA	IIIVNGKAWPRLT-----VRRRKRYF	296

ScFET3	212	RIIVNVGGFVSQ-YFWIEDHEMTVVEIDGITT-EKNVTDMLYITVAORYTVLVHTKND-TDKNFAIMQK--	276	
LAC1	225	RIINAALNDEL-EFVAVANHTLTVVEVDVAVYT-KPVHTKAIMIAPGQTTLLLRADQL-SGGEFLIAAT--	289	
LAC2	226	RIINAALNDEL-EFTIANHTLTVVEADACYV-KPEFTNIVLLGPGOTTNVLLKTKPIYPNATFYMLAR--	291	
LAC3	224	RVINAGMNOEL-FFSVANHQTFTVVEDSAYT-KPFTTNVIMIGPGOTTNVLLTANQR-PG-RYYMAAR--	287	
LAC4	222	RLVNAALNEEL-FFKVACHIFTVVEVDVAVYV-KPEKTDVLIAPGOTTNVLLTASKS-AG-KYLVTAS--	285	
LAC5	225	RVINSALNDEL-FFTIVANHKLTVVGADASYL-KPFTTNVIVLGPQOTTDVLLITGDQP-PN-RYYMAAR--	288	
LAC6	228	RIINAGINMET-FFTIANHRLTIVEVDGEYT-KPYTTERVMLVPGQTMNLTADQT-VG-RYSMAMG--	291	
LAC7	222	RIINAAMNDEL-FFKIANHRLTVVAADVAVYT-APYVTDVIVIAAPGOTIDALLEADQS-VDTSYYMAAH--	286	
LAC8	218	RIINAALNDEL-FFKIANHNTTVVAVDVAVYS-TPYLTDMVILTPGOTVDALLTADQA-IG-KYYMATL--	281	
LAC9	218	RIINAALNDEL-FFKIANHNTTVVAVDVAVYT-TPYLTDMVILTPGOTIDALLTADQP-IG-TYYMAII--	281	
LAC10	221	RIINAALNEEL-FFKIAHRTFTVVEVDVAVYV-KPFNTDTILIAPGOTTALVSAARP-SG-QYLIAAA--	284	
LAC11	222	RIINAALNDEL-FFGIAGHNMTVVEIDVAVYT-KPFTTKAILLGPQOTTNVLLKTDPS-PN-RYFMAAS--	285	
LAC12	223	RVINAALNDEL-FFTIVANHKLTVVGADASYL-KPFTTKVLMVLPQOTTDVLLTADQP-PK-RYYIAAR--	286	
LAC13	222	RVINSALNDEL-FFGVANHKLTVVAADASYT-KPFTTNVIMLGPQOTTDVLLTADQP-PA-HYYMAAH--	285	
LAC14	233	RIINAVMDEL-FFAIANHTLTVVAKDGYL-KHFKSDYLMITPGQSMVDVLLHANQR-PN-HYFVAAR--	296	
LAC15	218	RMVNAAMNDEL-FFAIANHSLTVVSADGHYI-KPIKATYITISPGETLDMLLHADQD-PERTYYMAAR--	282	
LAC16	182	RIINAALNEEL-FFKIAHVLTVVEVDVAVYT-KPYKTDVFIAPGOTTNVLLTANAN-AGSNYMVAAT--	246	
LAC17	221	RIINAALNDEL-FFSIANHTVTVVEADAIYV-KPEFTETILIAPGOTTNVLLKTKSSYPSAFFMTAR--	286	
AO	250	RIISLTALSAL-SFOIEGHNTLVVEADGHYV-EPFTVKNLFVYSCETYSVLLKADQN-PRRNYWITSSIV	316	
LPR1	295	RIINASNARFFKFFFSNGLDFIVVGS	SAYLSKPMVTKSILLSPEIVDVVDFYKS-PSRTVVLANDAP	363
LPR2	297	RIINASNARFFRFFFSNGLDFIVVGS	SAYLAKPVSTKSIVLLAPSEIVDVVDFSKS-TSKTAILANNAP	365

**ScFET3** 276 -----FDDTMLVIPSDDLQLNATSY-----MVYNK-TAALPTQNYVDSIDNFL**DD** 320  
**LAC1** 289 -PYVTS-VFP--FNNST---TVGFIRYTGKTKPENSVNTRRRRLTAMST-VVALPNMLDTKFAATKFSDS 351  
**LAC2** 291 -PYFTG-QGT--IDNTT---VAGILOQYQHHTKS-----SKNLSII-KPSLPPINSTSYAANFTKM 343  
**LAC3** 287 -AYNSA-NAP--FDNTT---TTAILQYVNPATRRGRG-----RGQIAPV-FVVLPGFNDTATATAFTNR 343  
**LAC4** 285 -EFMDA-PIA--VDNVT---ATATVHYSGTLS-----SSPTI-LTLPPPPONATSIANNFTNS 334  
**LAC5** 288 -AYQSAQNAP--FGNTT---TTAILQYKSAPCCGVGGSGTKKGNSEFKPI-METLPAYNTNTVTFSQS 351  
**LAC6** 291 -PYESAKNVK--FQNTS---AIANFOYIGALP-----NNVTV-PAKLPIFNNDIAVKTVMVG 341  
**LAC7** 286 -PYASAPAVP--FPNTT---TRGVIHYGGASK-----TGRSKPVLMPKLPSEFFDTLTAYRFYSN 339  
**LAC8** 281 -PYISAIGIP-TPDIKP---TRGLIVYQGATS-----SSSPA-EPLMPVPNDMSTAHRTSN 332  
**LAC9** 281 -PYFSAIGVPASPDTKP---TRGLIVYEGATS-----SSSPT-KPWWPPANDIPTAHRTSSN 333  
**LAC10** 284 -EFQDSAVVA--VDNRT---ATATVHYSGTLS-----ATPTK-TTSPPPPONATSVANTFVNS 334  
**LAC11** 285 -EFMDA-PVS--VDNKT---VTAILQYKGVPN-----TVLPI-LPKLPLPNDTSFALDYNKG 334  
**LAC12** 286 -AYQSAQNAP--FDNTT---TTAILQYKKTIT-----TSKPI-MPVLPAFNDTNTVTSFSRK 336  
**LAC13** 285 -AYNSA-NAA--FDNTT---TTAILKYKDASCVTILQA-----KSQARAI-PAQLPGFNDTATAAFTAQ 341  
**LAC14** 296 -AYSSAFGAG--FDKTT---TTAILQYKGDTL-----NRIKPI-LPYLPYNTREASTRTFNQ 347  
**LAC15** 282 -AYQSG-NID--FNNST---TIGILSYTSSCKAK-----TSSFSGY-YETLPFYNDTSAAFGFFTK 335  
**LAC16** 246 -TFTDA-HIP--YDNVT---ATATLHYIGHTSTV-----STSCKTV-LASLPPONATWVATKFSNR 299  
**LAC17** 286 -PYVTG-QGT--FDNST---VAGILEYEPKQTKGAHSRTS--IKNLQLF-KETLPALNDTNPATKFSNK 346  
**AO** 316 -----SRP--ATTPP---ATAVLNYPNHPRR-----RPPTSES-SNIVPEWNTFR--SRLAQ 362  
**LPR1** 364 YPYPSGDPVN--EENGK--VMKFIINNESEDD-----TCTIPKKLINYPNADVSNVAVLTRYISM 418  
**LPR2** 366 YPYPSGDPVT--EENSK--VMKFIINNKSEVD-----TSIIPKKLIEYPPAHVSTSTRTRYIAM 420

**ScFET3** 321 FYLQPY----EKEAIYGEPDHVITVDVMDNLK-----NGVN-YAFFNNITYTAPKV-PTLMT 372  
**LAC1** 352 IKSILGSAKYCKVPTKIDKRVIITISLNLQDCP---LNQTCQGY-AGKRFFASMNNISFVREPI-SILES 416  
**LAC2** 344 FRSLASSTFPANVPKVVDKQYFFAIGLGTNPCLP---KNQTCQGPNTTKFAASINNVSFILPNKTSLLQS 410  
**LAC3** 344 LRYWKR----APVPQQVDENLFFTVGLGLINCANP-NSPRCQGP-NGTRFAASMNNMSFVLPERSNSVMOA 407  
**LAC4** 335 LRSLSNKKYPALVPTTIDHHLFFTVGLGLINACP-----TCKAG-NGSRVVASINNVTFIMPKT-ALLPA 396  
**LAC5** 352 FRSLRR----AEVPTIEDENLFVTIIGLGLNNCPKNFRSRRCQGP-NGTRFTASMNNVSFAIPSNYSLLQA 416  
**LAC6** 342 LRSLSNA----VDVPRNIDAHLEITIGLVNKNKSENPNKNCQGP-RKGRLAASMNNISFIEPKV-SILEA 405  
**LAC7** 340 LTAIVNGPHWVPVPRYVDEEMLVTIIGLGLACAA--DN TTC-----PKFSASMSNHSFVLPKKLSILEA 400  
**LAC8** 333 ITSLVGGPHWTFVPRHVDEKMFITMGLGLDPCP---AGTKCIGP-LGQRYAGSINNRTFMIPERISMQEA 398  
**LAC9** 334 ITSLVGGPHWTFVPRHVDEKMFITMGLGLDPCP---SNAKCVGP-LDQRLAGSINNRTFMIPERISMQEA 399  
**LAC10** 335 LRSLSNKTYPANVPITVDHLLFTVGLGLINRCH-----SCKAG-NFSRVVAAINNITFKMPKT-ALLQA 396  
**LAC11** 335 LKSLNTPNFPALVPLKVDRLFYTIIGLGINACP-----TCV---NGTNLAASINNITFIMPKT-ALLKA 394  
**LAC12** 337 FKSLRN----VVVPTIDENLFFTVGLGLDNCPPKPKSRCQGL-NGTRFTASMNNVSFVLPNSFSLQA 401  
**LAC13** 342 MKSPSK----VKVPLEIDENLFFTVGLGLFNCPTP-NTQRCQGP-NGTRFTASINNVSFVIEPKQNSIMQA 405  
**LAC14** 348 FRSQRP----VNVPVKINTRLLYAISVNLNMCN---DDRPTGTP-FGKRFSSSINNISFVNPSV-DILRA 408  
**LAC15** 336 IKCLFS----GOVPVQISRRIITTVSINLRMCP---QN-SCGEP-NGSRLAASMNNISFVTPSHVDILKA 396  
**LAC16** 300 LRSLSNLEYPARVPTTVEHSLFFTVGLGANPCQ-----SCN---NGVRLVAGINNVTFTMPKT-ALLQA 359  
**LAC17** 347 LRSLSNKNFPANVPLNDRKFFFTVGLGTNPONHK-NNQTCQGPNTTMTFAASISNISFTMPKT-ALLQS 414  
**AO** 363 LAIKARRGFIALPENSQKIVL---LNTQNEV-----NGYR-RWVNNVSVYHHPKT-PYLIA 415  
**LPR1** 419 YEYVSN----SDEPHTL-----LVNGLPYEAPVT----- 443  
**LPR2** 421 FEYVSS----IDEPHTL-----YINGLPYNAPVT----- 445

**ScFET3** 373 VLSSGD-----QA-NNSEIYGSNTHTFILEKDEIVEIVLNNQDT----- 410  
**LAC1** 417 YYKKQSKGVFSLDFPEKPPNRFEDFTG--VDPV---SENMNTEFGTKLFEVEFGSRLEIVFOCTSFNLIE- 480  
**LAC2** 411 YFVGKSKNVFMTDFPTAIIPIFNNTG--TPP-----NNTMVSRTGKVVVLKYKTTVELVLQGTSLIGIE- 472  
**LAC3** 408 YYQGTG-GFTTDFPPVPVQFDYTG---NVS---RGLWQPIKGTAKYKLYKYSNVQIVLQDTSIVTPE- 469  
**LAC4** 397 HYFNIS-GVFTTDFPKNPPHVENYSG--GSV-----TNMATETGTRLYKLPYNATVQLVLQDTCVIAPE- 457  
**LAC5** 417 HHHGIP-GVFTTDFPAKPPVKEDYTG--NNIS---RSLYQPDRTGKLYKLYGSRVQIVLQDTSIVTPE- 479  
**LAC6** 406 YYKQLE-GVFTLDFPPTPEKAYDFVNGAPNDI---ANDTQAANGTRAIVFEYGSRIQIIFONTGTLTTE- 470  
**LAC7** 401 VFHDVK-GIFTADFPDQPPVKFDYTN---PNVTQTNPGLLFTQKSTSAKILKFNNTVEIVLQNHALIAE- 466  
**LAC8** 399 YFYNIS- IY **DD** NQ LK KFEQR-TNNDMKMMFPERKTSVKKIRENSTVEIVLQNTAIISPE- 465  
**LAC9** 400 YFYNIT-GVYTDLFPDQPELKFDFTKFEQHPTNSDMMMFPERKTSVKTIRESNSTVEIVLQNTGILTPE- 467  
**LAC10** 397 HYFNIT-GLYTTDFPAKPRRVFEDFTG--KPP-----SNLATMKATKLYKLPYNSTVQVVLQDTCNVAPE- 457  
**LAC11** 395 HYSNIS-GVFTTDFPDRPKAFNYTG--VPLT-----ANLGTSTGTRLSRVKENTTIELVLQDNTLLTVE- 456  
**LAC12** 402 HSNGIP-GVFTTDFPKPPVKEDYTG--NNIS---RALFQPVKGTAKYKLYKYSRVQVVLQDNTIVTSE- 464  
**LAC13** 406 YYQGTPTGVFTTDFPPTPPVTFDYTG---NVS---RGLWQPTRGTAKYKLYKYSRVQVVLQDTSIVTTE- 468  
**LAC14** 409 YYRHIG-GVYQEDFPRNPPTKENYTG--ENLP-----FPTRFGTKVVVLQDYNSSVELILOQTTVWASN- 468  
**LAC15** 397 YYYHIK-GVYGRFPEFPPLIFNFTA--ENQP---LFLETPLRLATEVKVIEFGQVVELVLQGTSLVGGG- 459  
**LAC16** 360 HFFNIS- **DD** AK SNPY A--PVKL---GVNAATMKGTAKLYRLPYNATVQIVLQNTAMILSD- 422  
**LAC17** 415 HYSQSGHGVYSPKFPWSPVFPENYTG--TPP-----NNTMVSNGTNLMVLPYNTSVELVMDQDTSILGAE- 476  
**AO** 416 LKQNLN-NAFDWRE--TAFENYDSRN--YDIFAK-PLNANATSDGIYRLRFNSTVIVILQNTAMTNANN 479  
**LPR1** 443 -----ETPKSGT-----TEVWEVIN-----LTED- 462  
**LPR2** 445 -----ETPKIGT-----SEVWEVIN-----LTED- 464

ScFET3	410	-GTHPFHLHGHAFTQIQDRRTYDDALGEVPHSEF-----PDNHP-AFPEY--PMR--RDTLVVRPQSN---	467
LAC1	480	--NHPLHVLHGHNFFVV-----GRGFGNFD-----PEKDP-KRYNLVDPE--RNTFAVPTGGW---	528
LAC2	472	--AHPIHLHGHNFFVV-----GQGFNFN-----PARDP-KHYNLVDPE--RNTINIPSGGW---	520
LAC3	469	--NHPMHLHGYNFFVV-----GSGFGNFN-----PRTDP-ARFNLFDPPE--RNTIGTEPPGGW---	517
LAC4	457	--NHPVHLHGHNFFEV-----GRGLGNFN-----STKDP-KNFNLVDPE--RNTIGVPSGGW---	505
LAC5	479	--NHPIHLHGYNFFII-----AEGFGNFN-----PKKDT-AKFNLDPPE--RNTVGVPVNGW---	527
LAC6	470	--NHPIHLHGHSFYVI-----GYGTGNFD-----QQT-AKFNLDPPE--LNTIGVPPGGW---	516
LAC7	466	--SHPMHLHGHNFFVL-----AQGFNYD-----PSRDR-SKLNLDVPS--RNTLAVPPGGW---	514
LAC8	465	--SHPMHLHGHNFFVL-----CYGFGNYD-----PIRDA-RKLNLFNPQM--HNTVGVPVGGW---	513
LAC9	467	--SHPMHLHGHNFFVL-----CYGFGNYD-----PIRDA-RKLNLFNPQM--HNTVGVPVGGW---	515
LAC10	457	--NHPIHLHGHNFFVV-----GLGTGNYN-----SKKDS-NKFNLVDPE--RNTVGVPVGGW---	505
LAC11	456	--SHPFHLHGHNFFVV-----GTGVGNFD-----PKKDP-AKFNLVDPE--RNTVGVPVGGW---	504
LAC12	464	--NHPIHLHGYNFFIV-----GEGFGNFN-----PKKDT-SKFNLDVPE--RNTVAVPVNGW---	512
LAC13	468	--NHPMHLHGYNFFVV-----GTGVGNFN-----PNTDT-SSFNLDPPR--RNTIGTEPPGGW---	516
LAC14	468	--IHPIHLHGYNFFVV-----GSGFGNFD-----RRKDP-LRYNLVDPE--ETTGVVERNGW---	516
LAC15	459	-LDHPMHLHGHSFYVV-----GVGFGNYN-----ISEEDPSSRYNLYDPPY--KNTMTVVERNGW---	510
LAC16	422	--NHPFHLHGHNFFEV-----GRGLGNFN-----PEKDP-KAFNLVDPE--RNTVGVPVGGW---	470
LAC17	476	--SHPMHLHGHNFFVV-----GQGFNFN-----PNKDP-RNFNLVDPE--RNTVGVPVGGW---	524
AO	480	SETHPWHLHGHDFFVL-----CYGEGKFN-----ESEDV-KRYNRVDPIK--KNTVAVQPPGW---	529
LPR1	462	--NHPLHLHLGLFKVVEQTAL---LAAGLEEFKECMTKQNDV-KKQISKYARGKKTAVTAHERGWKNV	525
LPR2	464	--NHPLHLHLGLFKVLEQTAL---VKS---EEFIECMTKRNDV-VKCEISKYARGNKTAFTVHERGWKNV	525

ScFET3	467	-----FVIRFK-----ADNPGVWFHCHIEWELLOGLGLVLVEDPFGIQDAHSQQLS-	514
LAC1	528	-----AAIRIN-----ADNPGVWFHCHLEQHTSWGLAMGFI-----VKDGPLPSQTL	571
LAC2	520	-----VAIRFL-----ADNPGVWLMHCHIEHLSWGLTMAV-----VLDGDLNPQKL	563
LAC3	517	-----VAIRFV-----ADNPGVWFMHCHIDSLGWGLAMVFL-----VENGRGQLOSV	560
LAC4	505	-----VVIRFR-----ADNPGVWFMHCHLEVHTTWGLKMAFL-----VENGKGPNSI	548
LAC5	527	-----AVIRFI-----ADNPGVWIMHCHLDALISWGLAMAF-----VENGNGLVQTI	570
LAC6	516	-----AAIRFV-----ANNPGLWLLHCHFDIHTWGMSTMTFI-----VKNGKKVQESL	559
LAC7	514	-----AVIRFT-----ANNPGVWLFHCHIDVLPFGGLGMIFV-----VKNGPTKSTTL	557
LAC8	513	-----VVLRFI-----ANNPGVWLFHCHMDALPYGIMSATFI-----VONGPTPETS	556
LAC9	515	-----VVLRFI-----ANNPGVWLFHCHMDALPIGIMMAFI-----VONGPTRETS	558
LAC10	505	-----AAIRFR-----ADNPGVWFMHCHLEVHTTWGLKMAFL-----VENGKGPNSI	548
LAC11	504	-----AAIRFR-----ADNPGVWFMHCHLEVHTTWGLKMAFV-----VENGETPELSV	547
LAC12	512	-----AVIRFV-----ADNPGVWLMHCHLDVHIKWLGLAMAF-----VDNGVGELET	555
LAC13	516	-----VAIRFV-----ANNPGVWLMHCHIDSLFWGLAMVFL-----VENGEHGLQSV	559
LAC14	516	-----TAVRFV-----ANNPGVWLLHCHIERHATWGMNTVFI-----VKDGPTKSSRM	559
LAC15	510	-----TAIRFV-----ADNPGVWFMHCHLDRLHTWGMNVVFI-----VKNGREPNOQI	553
LAC16	470	-----TAIRFI-----ADNPGVWFMHCHLEVHTTWGLKMAFV-----VDNGHGPDOQL	513
LAC17	524	-----TAIRFL-----ADNPGVWFMHCHLEVHTSWGLRMAWL-----VLDGDKPDQKL	567
AO	529	-----TAIRFR-----ADNPGVWSEFHCHIESHFFMGMGIVF-----ESGIDKVS	570
LPR1	526	FKMMPGHVTRILVRFYSYIHTNASYPFDPTQEPG-YVYHCHILDEEDNMMMRPLKV---II-----	581
LPR2	526	FKMMPGHVTKILVRFYSYIHSNESYSFDTQEPG-YVYHCHILDEEDNMMMRPLAM---VL-----	581

ScFET3	514	---ENHLEVQSCSVATEGNAAANTLDLTDLTGENVQHAFIPTGFTKKGIIAMTFSCFAGILGIITIAIY	581
LAC1	572	LPPPHDLFQC-----	581
LAC2	564	LPPPSDFPKC-----	573
LAC3	561	QAPPDLPLRC-----	570
LAC4	549	LPPPKDLPKC-----	558
LAC5	571	EQPPHDLFVC-----	580
LAC6	560	PHPPADLPKC-----	569
LAC7	558	PPPPDLPKC-----	567
LAC8	557	PSPPSNLPQC-----TR-----	568
LAC9	559	PSPPSNLPQC-----TR-----	570
LAC10	549	RPPPSDLPKC-----	558
LAC11	548	LPPPKDYFSC-----	557
LAC12	556	EAPPHDLPIC-----	565
LAC13	560	QSPPLDLFQC-----	569
LAC14	560	VKPPPDLPSC-----	569
LAC15	554	LPPPDLPFCY-----	564
LAC16	514	LPPPADLPKC-----	523
LAC17	568	LPPPADLPKC-----	577
AO	570	---PSSIMGC-----GQTKR-----	582
LPR1	581	-----	581
LPR2	581	-----	581

<b>ScFET3</b>	582	GMMDMEDATEKVIRDLHVDPEVLLNEVDENEERQVNEDRHSTKHKQFLTKAKRFF	636
<b>LAC1</b>	581	-----	581
<b>LAC2</b>	573	-----	573
<b>LAC3</b>	570	-----	570
<b>LAC4</b>	558	-----	558
<b>LAC5</b>	580	-----	580
<b>LAC6</b>	569	-----	569
<b>LAC7</b>	567	-----	567
<b>LAC8</b>	568	-----DPTIY-----DSRTTNIDLS-----Y	584
<b>LAC9</b>	570	-----DPTIY-----DSRTTNVDMS-----Y	586
<b>LAC10</b>	558	-----	558
<b>LAC11</b>	557	-----	557
<b>LAC12</b>	565	-----	565
<b>LAC13</b>	569	-----	569
<b>LAC14</b>	569	-----	569
<b>LAC15</b>	564	-----E	565
<b>LAC16</b>	523	-----	523
<b>LAC17</b>	577	-----	577
<b>AO</b>	582	-----	582
<b>LPR1</b>	581	-----	581
<b>LPR2</b>	581	-----	581

**Supplementary Figure 1. Amino acid sequence alignment of ScFET3 with Arabidopsis LMCO Oxidase family proteins and Ascorbate Oxidase.** Conserved histidine residues involved in Cu binding are highlighted in green, and aspartic acid residues that putatively correspond to those known to be essential for ferroxidase activity of ScFET3 are highlighted in red (D319, D320) or in pink (E185, D283, D409) (Bonaccorsi di Patti et al., 2005; Quintanar et al., 2007). ScFET3, 855080. LAC1, At1g18140. LAC2, At2g29130. LAC3, At2g30210. LAC4, At2g38080. LAC5, At2g40370. LAC6, At2g46570. LAC7, At3g09220. LAC8, At5g01040. LAC9, At5g01050. LAC10, At5g01190. LAC11, At5g03260. LAC12, At5g05390. LAC13, At5g07130. LAC14, At5g09360. LAC15, At5g48100. LAC16, At5g58910. LAC17, At5g60020. AO, At4g39830. LPR1, At1g23010. LPR2, At1g71040.