ath1121501frmavecs

November 11, 2026

`ath1121501frmavecs` *Vectors used by fRMA for ath1121501*

Description

Vectors allowing to apply the fRMA procedure on data obtained with Affymetrix Arabidopsis ATH1 Genome Array and annotated with the ATH1-121501 CDF file (GPL198 platform). This data object was automatically created by the package frmaTools version 1.52.0.

Usage

```
data(ath1121501frmavecs)
```

Format

A list with 6 elements.

normVec	normalization vector
probeVec	probe effect vector
probeVarWithin	within batch probe variance
probeVarBetween	between batch probe variance
probesetSD	within probeset standard deviation
medianSE	median standard errors

Details

The vectors were computed based on 100 triplicates, orginating from 100 different data series available on the GPL198 platform on Gene Expression omnibus (GEO), as recommended by the authors of the frozen Robust Multiarray Analysis (McCall et al., 2010 - DOI: 10.1093/biostatistics/kxp059; McCall et Irizarry, 2011 - DOI: 10.1186/1471-2105-12-369). Those 100 triplicates were related to a large variety of study subjects, encompassing biotic treatments, abiotic stresses, control conditions (in seedlings), development (different tissues, organs, in control condition) and chemical treatments (hormones, growth regulators, ...). The following table provides the GEO sample ID corresponding to those triplicates, alongside with the GEO sample title, GEO series ID, the class (biotic, abiotic,

control, development, chemical), genotype, biomaterial (tissues, organs, cells,..), age and treatment. All this information was manually curated.

sample	title	series
GSM508439	pathogen infection: TuMV inoculated - RNA fraction: total RNA - rep1	GSE20278
GSM508440	pathogen infection: TuMV inoculated - RNA fraction: total RNA - rep2	GSE20278
GSM508441	pathogen infection: TuMV inoculated - RNA fraction: total RNA - rep3	GSE20278
GSM39203	Col_Chitin1	GSE2169
GSM39204	Col_Chitin2	GSE2169
GSM39205	Col_Chitin3	GSE2169
GSM48125	Col_CSC1	GSE2538
GSM48126	Col_CSC2	GSE2538
GSM48127	Col_CSC3	GSE2538
GSM133079	JD AT+EO COL WT 12H INFECTED	GSE5686
GSM133095	JD AT+EO COL WT EXP2 12H INFECTED	GSE5686
GSM133101	JD AT+EO TIME EXP3 EO INF 12H	GSE5686
GSM1111986	AB Infected Col-0 leaf , biological replicate 1	GSE45690
GSM1111987	AB Infected Col-0 leaf , biological replicate 2	GSE45690
GSM1111988	AB Infected Col-0 leaf , biological replicate 3	GSE45690
GSM1144681	Plant inoculated with PsJN inactivated, biological rep 1	GSE47092
GSM1144682	Plant inoculated with PsJN inactivated, biological rep 2	GSE47092
GSM1144683	Plant inoculated with PsJN inactivated, biological rep 3	GSE47092
GSM1521091	Full AC2 at T1, biological rep1	GSE62180
GSM1521092	Full AC2 at T1, biological rep2	GSE62180
GSM1521093	Full AC2 at T1, biological rep3	GSE62180
GSM1532918	Cocultivation at 8 hrs, biological rep1_leaf	GSE62749
GSM1532919	Cocultivation at 8 hrs, biological rep2_leaf	GSE62749
GSM1532922	Cocultivation at 8 hrs, biological rep1_root	GSE62749
GSM1970346	Col-0 roots, Fusarium treatment, replicate 2	GSE75928
GSM1970347	Col-0 roots, Fusarium treatment, replicate 3	GSE75928
GSM1970348	Col-0 roots, Fusarium treatment, replicate 4	GSE75928
GSM2325661	seedling roots, 3h OGs, bio rep 1	GSE87216
GSM2325662	seedling roots, 3h OGs, bio rep 2	GSE87216
GSM2325663	seedling roots, 3h OGs, bio rep 3	GSE87216
GSM151700	Col-0 48 hpi, biological replicate 1	GSE6556
GSM151701	Col-0 48 hpi, biological replicate 2	GSE6556
GSM151702	Col-0 48 hpi, biological replicate 3	GSE6556
GSM828864	Leafminer damaged A.thaliana seedlings rep1	GSE33505
GSM828865	Leafminer damaged A.thaliana seedlings rep2	GSE33505
GSM828866	Leafminer damaged A.thaliana seedlings rep3	GSE33505
GSM298415	A.thaliana Col-0, Flg22 4h rep1	GSE11807
GSM298418	A.thaliana Col-0, Flg22 4h rep3	GSE11807
GSM298420	A.thaliana Col-0, Flg22 4h rep2	GSE11807
GSM3449511	Col-0/Psm-1, biological rep1	GSE121886
GSM3449512	Col-0/Psm-2, biological rep2	GSE121886
GSM3449513	Col-0/Psm-3, biological rep3	GSE121886
GSM436317	Col PSTDC3000 24h 1st rep	GSE17500
GSM436318	Col PSTDC3000 24h 2nd rep	GSE17500

GSM436319	Col PSTDC3000 24h 3rd rep	GSE17500
GSM469414	DeVos_1-2_Treatment_Rep1_ATH1	GSE18960
GSM469416	DeVos_1-4_Treatment_Rep2_ATH1	GSE18960
GSM469418	DeVos_1-6_Treatment_Rep3_ATH1	GSE18960
GSM469763	Mitra_2-7_Col0-PsmES4326-24hpi_Rep1_ATH1	GSE18978
GSM469764	Mitra_2-8_Col0-PsmES4326-24hpi_Rep2_ATH1	GSE18978
GSM469765	Mitra_2-9_Col0-PsmES4326-24hpi_Rep3_ATH1	GSE18978
GSM545384	colptobis_2 with array type ATH1 from Affymetrix	GSE21920
GSM545385	colptobis_1 with array type ATH1 from Affymetrix	GSE21920
GSM545386	colptobis_3 with array type ATH1 from Affymetrix	GSE21920
GSM605343	Pseudomonas-treatment 1	GSE24552
GSM605344	Pseudomonas-treatment 2	GSE24552
GSM605345	Pseudomonas-treatment 3	GSE24552
GSM921521	Arab_GiantCell_Root_14d_BioRep1	GSE37553
GSM921522	Arab_GiantCell_Root_14d_BioRep2	GSE37553
GSM921523	Arab_GiantCell_Root_14d_BioRep3	GSE37553
GSM5597522	Col 6h wound A	GSE184793
GSM5597523	Col 6h wound B	GSE184793
GSM5597524	Col 6h wound C	GSE184793
GSM2769932	Wild-type seedlings, primed and triggered, biological rep2	GSE103398
GSM2769933	Wild-type seedlings, primed and triggered, biological rep3	GSE103398
GSM2769931	Wild-type seedlings, primed and triggered, biological rep1	GSE103398
GSM265411	Arabidopsis, whole roots, -Fe, replicate 1	GSE10496
GSM265412	Arabidopsis, whole roots, -Fe, replicate 2	GSE10496
GSM265413	Arabidopsis, whole roots, -Fe, replicate 3	GSE10496
GSM2340100	Low blue light, rep1	GSE87770
GSM2340101	Low blue light, rep2	GSE87770
GSM2340102	Low blue light, rep3	GSE87770
GSM1444203	Col upon hypoxia under light submergence for 48 h, biological rep1	GSE59719
GSM1444204	Col upon hypoxia under light submergence for 48 h, biological rep2	GSE59719
GSM1444205	Col upon hypoxia under light submergence for 48 h, biological rep3	GSE59719
GSM290628	rosettes_drought_rep1	GSE11538
GSM290629	rosettes_drought_rep2	GSE11538
GSM290630	rosettes_drought_rep3	GSE11538
GSM451832	WT_3h_-P_rep1	GSE18071
GSM451833	WT_3h_-P_rep2	GSE18071
GSM451834	WT_3h_-P_rep3	GSE18071
GSM604644	seedling 24h light, (+Lin), rep1	GSE24517
GSM604645	seedling 24h light, (+Lin), rep2	GSE24517
GSM604646	seedling 24h light, (+Lin), rep3	GSE24517
GSM852939	leaf_Col_ozone_2d_biological rep1	GSE34667
GSM852940	leaf_Col_ozone_2d_biological rep2	GSE34667
GSM852941	leaf_Col_ozone_2d_biological rep3	GSE34667
GSM989196	wild type (Col) glucose treatment, biological rep1	GSE40245
GSM989197	wild type (Col) glucose treatment, biological rep2	GSE40245
GSM989198	wild type (Col) glucose treatment, biological rep3	GSE40245
GSM1415488	light-hs, rep1	GSE58616
GSM1415489	light-hs, rep2	GSE58616

GSM1415490	light-hs, rep3	GSE58616
GSM1446768	TiO2 treated germinant, biological rep1	GSE59809
GSM1446769	TiO2 treated germinant, biological rep2	GSE59809
GSM1446770	TiO2 treated germinant, biological rep3	GSE59809
GSM347118	Arabidopsis rosette_Light Wounded_Rep3	GSE13803
GSM347112	Arabidopsis rosette_Light Wounded_Rep1	GSE13803
GSM347114	Arabidopsis rosette_Light Wounded_Rep2	GSE13803
GSM4125057	wt Cd100 rep 1	GSE138943
GSM4125058	wt Cd100 rep 2	GSE138943
GSM4125059	wt Cd100 rep 3	GSE138943
GSM392180	WT-16degreeC-RepA	GSE15689
GSM392263	WT-16degreeC-RepB	GSE15689
GSM392273	WT-16degreeC-RepC	GSE15689
GSM5584760	col submerged for 48h, biological rep1	GSE184340
GSM5584761	col submerged for 48h, biological rep2	GSE184340
GSM5584762	col submerged for 48h, biological rep3	GSE184340
GSM539316	WT-sib, treatment N-L+, 1 biological rep	GSE21601
GSM539317	WT-sib, treatment N-L+, 2 biological rep	GSE21601
GSM539318	WT-sib, treatment N-L+, 3 biological rep	GSE21601
GSM566862	Split KNO3 roots - 2hours - repeat 2	GSE22966
GSM566863	Split KNO3 roots - 2hours - repeat 3	GSE22966
GSM566861	Split KNO3 roots - 2hours - repeat 1	GSE22966
GSM643107	leaf 30%Inhibition rep1 [Arabidopsis]	GSE26197
GSM643108	leaf 30%Inhibition rep2 [Arabidopsis]	GSE26197
GSM643110	leaf 30%Inhibition rep4 [Arabidopsis]	GSE26197
GSM901075	osmotic_10day_leaf_rep1	GSE36789
GSM901076	osmotic_10day_leaf_rep2	GSE36789
GSM901077	osmotic_10day_leaf_rep3	GSE36789
GSM2896650	Columbia, biological rep1	GSE108376
GSM2896651	Columbia, biological rep2	GSE108376
GSM2896652	Columbia, biological rep3	GSE108376
GSM3639524	seedings under mock treatment, biological rep1	GSE127830
GSM3639525	seedings under mock treatment, biological rep2	GSE127830
GSM3639526	seedings under mock treatment, biological rep3	GSE127830
GSM538647	Seedlings untreated, biological rep1	GSE21556
GSM538648	Seedlings untreated, biological rep2	GSE21556
GSM538649	Seedlings untreated, biological rep3	GSE21556
GSM542673	control_4h-1	GSE21786
GSM542674	control_4h-2	GSE21786
GSM542675	control_4h-3	GSE21786
GSM1028173	Col-0 biological rep1	GSE41958
GSM1028174	Col-0 biological rep2	GSE41958
GSM1028175	Col-0 biological rep3	GSE41958
GSM250982	Col-0 without treatment, biological rep1	GSE9957
GSM250983	Col-0 without treatment, biological rep2	GSE9957
GSM250984	Col-0 without treatment, biological rep3	GSE9957
GSM1202382	Col-0, WT, at HL 0h, biological rep1	GSE49596
GSM1202383	Col-0, WT, at HL 0h, biological rep2	GSE49596

GSM1202384	Col-0, WT, at HL 0h, biological rep3	GSE49596
GSM1257966	WT complete, biological rep1	GSE52046
GSM1257967	WT complete, biological rep2	GSE52046
GSM1257968	WT complete, biological rep3	GSE52046
GSM128757	Mittler_2-1_wildtype_Rep1_ATH1	GSE5530
GSM128758	Mittler_2-2_wildtype_Rep2_ATH1	GSE5530
GSM128759	Mittler_2-3_wildtype_Rep3_ATH1	GSE5530
GSM1875295	WT_rep1	GSE72954
GSM1875296	WT_rep2	GSE72954
GSM1875297	WT_rep3	GSE72954
GSM9595	Col_control_I_1	GSE629
GSM9596	Col_control_I_2	GSE629
GSM9597	Col_control_I_3	GSE629
GSM2144831	Col-0, biological rep1	GSE81218
GSM2144832	Col-0, biological rep2	GSE81218
GSM2144833	Col-0, biological rep3	GSE81218
GSM591834	WT mock treated_biological rep 1	GSE24052
GSM591835	WT mock treated_biological rep 2	GSE24052
GSM591836	WT mock treated_biological rep 3	GSE24052
GSM617578	Col, rep1	GSE25134
GSM617579	Col, rep2	GSE25134
GSM617580	Col, rep3	GSE25134
GSM656490	Col-0, 0 hrs, bio rep 2	GSE26679
GSM656491	Col-0, 0 hrs, bio rep 3	GSE26679
GSM656492	Col-0, 0 hrs, bio rep 4	GSE26679
GSM738872	Col-0 WT seedling at 5 dpg, biological rep2	GSE29814
GSM738873	Col-0 WT seedling at 5 dpg, biological rep3	GSE29814
GSM738874	Col-0 WT seedling at 5 dpg, biological rep4	GSE29814
GSM761617	Columbia_0min_biorep1	GSE30702
GSM761620	Columbia_0min_biorep4	GSE30702
GSM761621	Columbia_0min_biorep5	GSE30702
GSM856033	seedling at 14 day_mock treatment_biological replica 1	GSE34837
GSM856034	seedling at 14 day_mock treatment_biological replica 2	GSE34837
GSM856035	seedling at 14 day_mock treatment_biological replica 3	GSE34837
GSM686101	wild type Col-0, rep1	GSE27704
GSM686102	wild type Col-0, rep2	GSE27704
GSM686103	wild type Col-0, rep3	GSE27704
GSM1304062	Leaves mock treated 3 h, biological rep1	GSE53957
GSM1304063	Leaves mock treated 3 h, biological rep2	GSE53957
GSM1304064	Leaves mock treated 3 h, biological rep3	GSE53957
GSM2482338	Col-0 developing seeds, 10-11 days after flower opening, biological replicate 1 [re-analysis]	GSE94763
GSM2482339	Col-0 developing seeds, 10-11 days after flower opening, biological replicate 2 [re-analysis]	GSE94763
GSM2482340	Col-0 developing seeds, 10-11 days after flower opening, biological replicate 3 [re-analysis]	GSE94763
GSM142750	MJ001_ATH1_A1-jones-WT1	GSE6165
GSM142751	MJ001_ATH1_A2-jones-WT2	GSE6165
GSM142754	MJ001_ATH1_A5-jones-WT-Rep3	GSE6165
GSM184901	Arabidopsis, root cells, stele, standard conditions, replicate 1	GSE7641
GSM184902	Arabidopsis, root cells, stele, standard conditions, replicate 2	GSE7641

GSM184903	Arabidopsis, root cells, stele, standard conditions, replicate 3	GSE7641
GSM131831	Quick_A27_0-0hr_Rep2_ATH1	GSE5639
GSM131833	Quick_A53_0-0hr_Rep3_ATH1	GSE5639
GSM131835	Quick_A79_0-0hr_Rep4_ATH1	GSE5639
GSM1511283	wild-type (Col-0) 8 DAF Seed 1	GSE61684
GSM1511284	wild-type (Col-0) 8 DAF Seed 2	GSE61684
GSM1511285	wild-type (Col-0) 8 DAF Seed 3	GSE61684
GSM133978	Birnbaum_1-8_StageII-1_Rep1_ATH1	GSE5749
GSM133979	Birnbaum_1-9_StageII-2_Rep2_ATH1	GSE5749
GSM133980	Birnbaum_1-10_StageII-3_Rep3_ATH1	GSE5749
GSM133767	Lindsey_1-19_torpedo-basal_Rep4_ATH1	GSE5730
GSM133768	Lindsey_1-20_torpedo-basal_Rep5_ATH1	GSE5730
GSM133769	Lindsey_1-21_torpedo-basal_Rep6_ATH1	GSE5730
GSM128782	Somerville_1-5_flower-GC6_Rep2_ATH1	GSE5533
GSM128783	Somerville_1-6_flower-GH5_Rep1_ATH1	GSE5533
GSM128784	Somerville_1-7_flower-GH6_Rep2_ATH1	GSE5533
GSM1296372	WT(Col-0), biological rep1	GSE53580
GSM1296373	WT(Col-0), biological rep2	GSE53580
GSM1296374	WT(Col-0), biological rep3	GSE53580
GSM1133319	Day Time Control 1	GSE46621
GSM1133320	Day Time Control 2	GSE46621
GSM1133321	Day Time Control 3	GSE46621
GSM1091681	Columbia Clipped_Biol_Rep 1	GSE44781
GSM1091682	Columbia Clipped_Biol_Rep 2	GSE44781
GSM1091683	Columbia Clipped_Biol_Rep 3	GSE44781
GSM871248	pericycle control 1	GSE35580
GSM871249	pericycle control 2	GSE35580
GSM871250	pericycle control 3	GSE35580
GSM131540	ATGE_26_A	GSE5630
GSM131541	ATGE_26_B	GSE5630
GSM131542	ATGE_26_C	GSE5630
GSM390161	lateral nectary, stage 14-15 rep1	GSE15601
GSM390162	lateral nectary, stage 14-15 rep2	GSE15601
GSM390163	lateral nectary, stage 14-15 rep3	GSE15601
GSM2044875	Empty vector plants without DEX treatment at T9, biological rep1	GSE77153
GSM2044876	Empty vector plants without DEX treatment at T9, biological rep2	GSE77153
GSM2044877	Empty vector plants without DEX treatment at T9, biological rep3	GSE77153
GSM184503	Pericycle root cells 2hr KCl control treated, biological rep1	GSE7631
GSM184504	Pericycle root cells 2hr KCl control treated, biological rep2	GSE7631
GSM184505	Pericycle root cells 2hr KCl control treated, biological rep3	GSE7631
GSM1509558	ScionFlowerBud1	GSE61631
GSM1509559	ScionFlowerBud2	GSE61631
GSM1509560	ScionFlowerBud3	GSE61631
GSM1535437	Cells whole embryo, biological rep 1	GSE60242
GSM1535438	Cells whole embryo, biological rep 2	GSE60242
GSM1535439	Cells whole embryo, biological rep 3	GSE60242
GSM1289220	Col-0 plants under control conditions, rep1	GSE53308
GSM1289221	Col-0 plants under control conditions, rep2	GSE53308

GSM1289222	Col-0 plants under control conditions, rep3	GSE53308
GSM433643	4hPT, biological rep2	GSE17343
GSM433644	4hPT, biological rep3	GSE17343
GSM433645	4hPT, biological rep4	GSE17343
GSM325126	auxin-treated seedlings, biological rep1	GSE12964
GSM325127	auxin-treated seedlings, biological rep2	GSE12964
GSM325128	auxin-treated seedlings, biological rep3	GSE12964
GSM373534	SA treated, biological rep1	GSE14961
GSM373535	SA treated, biological rep2	GSE14961
GSM373536	SA treated, biological rep3	GSE14961
GSM469825	Gronlund_1-21_BR3+GA-180mins_Rep3_ATH1	GSE18985
GSM469832	Gronlund_1-14_BR2+GA-180mins_Rep2_ATH1	GSE18985
GSM469839	Gronlund_1-7_BR1+GA-180mins_Rep1_ATH1	GSE18985
GSM679546	Mature 1-1	GSE27508
GSM679547	Mature 1-2	GSE27508
GSM679548	Mature 1-3	GSE27508
GSM713255	ABA_3	GSE28800
GSM713256	ABA_2	GSE28800
GSM713257	ABA_1	GSE28800
GSM744705	SAM_L-AOPP_Rep1	GSE30092
GSM744706	SAM_L-AOPP_Rep2	GSE30092
GSM744707	SAM_L-AOPP_Rep3	GSE30092
GSM1053027	Roots at T2 naxillin, rep1	GSE42896
GSM1053028	Roots at T2 naxillin, rep2	GSE42896
GSM1053029	Roots at T2 naxillin, rep3	GSE42896
GSM1399594	PEO-IAA replicate1	GSE58028
GSM1399595	PEO-IAA replicate2	GSE58028
GSM1399596	PEO-IAA replicate3	GSE58028
GSM1516365	Col-0 leaves, MeJA treatment, replicate 2	GSE61884
GSM1516366	Col-0 leaves, MeJA treatment, replicate 3	GSE61884
GSM1516367	Col-0 leaves, MeJA treatment, replicate 4	GSE61884
GSM269475	Col-0, 24h after BTH, rep-A	GSE10646
GSM269477	Col-0, 24h after BTH, rep-B	GSE10646
GSM269478	Col-0, 24h after BTH, rep-C	GSE10646
GSM297833	tunicamycin_rep2	GSE11758
GSM297839	tunicamycin_rep3	GSE11758
GSM297843	tunicamycin_rep5	GSE11758
GSM323078	Col-0_norflurazon_1	GSE12887
GSM323079	Col-0_norflurazon_2	GSE12887
GSM323080	Col-0_norflurazon_3	GSE12887
GSM347944	Col-0_DCA_6d_rep1	GSE13833
GSM347945	Col-0_DCA_6d_rep2	GSE13833
GSM347946	Col-0_DCA_6d_rep3	GSE13833
GSM469812	Rylott_1-3_TNT-treated-seedlings_Rep3_ATH1	GSE18983
GSM469813	Rylott_1-2_TNT-treated-seedlings_Rep2_ATH1	GSE18983
GSM469814	Rylott_1-1_TNT-treated-seedlings	GSE18983
GSM702591	Skipsey_1-16_CMP_24hr_Rep1_ATH1	GSE28431
GSM702592	Skipsey_1-17_CMP_24hr_Rep2_ATH1	GSE28431

GSM702593	Skipsey_1-18_CMP_24hr_Rep3_ATH1	GSE28431
GSM4693848	Columbia0_Pakerine_1	GSE155026
GSM4693849	Columbia0_Pakerine_2	GSE155026
GSM4693850	Columbia0_Pakerine_3	GSE155026
GSM952979	seedling culture at 4 h_EtOH_biol rep 1	GSE38965
GSM952980	seedling culture at 4 h_EtOH_biol rep 2	GSE38965
GSM952981	seedling culture at 4 h_EtOH_biol rep 3	GSE38965
GSM1375895	NAA +AA 1	GSE57140
GSM1375896	NAA +AA 2	GSE57140
GSM1375897	NAA +AA 3	GSE57140
GSM1541887	LTN006-2, aza-dc Rep1	GSE63131
GSM1541888	LTN007-2, aza-dc Rep2	GSE63131
GSM1541889	LTN008-2, aza-dc Rep3	GSE63131
GSM157382	Sakakibara_1-1_TZ-treatment-wild_Rep1_ATH1	GSE6832
GSM157383	Sakakibara_1-2_TZ-treatment-wild_Rep2_ATH1	GSE6832
GSM157384	Sakakibara_1-3_TZ-treatment-wild_Rep3_ATH1	GSE6832

Examples

```
data(ath1121501frmavecs)
str(ath1121501frmavecs)
```

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∗ **datasets**
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ath1121501frmavecs, 1