

Table S1. Oligo microarray analysis of the roots and the shoots of OXOs, OXHv, RNAi and VC rice under Fe-deficient conditions.

	accessions	annotation	Fe-deficient roots			Fe-deficient shoots			
			RNAi/VC	OXOS/VC	OXHV/VC	RNAi/VC	OXOS/VC	OXHV/VC	
TOM	Os11g0134900 AK069533	OSTOM1	0.29	0.29	1.13	0.41	0.84	1.62	
	Os11g0135000 AK121911	OSTOM2	0.95	0.80	1.19	1.03	0.74	1.34	
	Os11g0135000 AK066565	OSTOM2	0.91	0.79	1.16	1.01	0.73	1.38	
	Os11g0135900 AK064297	OSTOM3	0.90	0.85	1.29	0.81	0.97	1.01	
	Os11g0135900 AK072447	OSTOM3	0.90	0.85	1.26	0.87	1.01	1.12	
ENA	Os11g0151500 AK102457	OsENA1	0.85	0.83	1.10	0.98	0.74	1.06	
	Os06g0695800 AK064089	OsENA2	0.95	1.00	1.02	1.00	1.05	1.04	
DMA	Os03g0307300 AB021746	OsNAS1	0.98	0.94	1.02	1.23	0.78	1.23	
	Os03g0307300 AK112069	OsNAS1	0.98	0.95	1.00	1.22	0.77	1.27	
	Os03g0307200 AB023818	OsNAS2	0.96	0.87	1.03	1.31	0.79	1.46	
	Os03g0307200 AK112011	OsNAS2	0.99	0.90	1.08	1.34	0.79	1.45	
	Os07g0689600 AB023819	OsNAS3	0.95	0.91	1.17	0.82	0.64	1.35	
	Os07g0689600 AK070656	OsNAS3	0.98	0.94	1.19	0.85	0.64	1.40	
	Os02g0306400 AB206814	OsNAAT1	0.90	0.90	1.05	1.08	0.75	1.29	
	Os02g0306400 AK206814	OsNAAT1	0.92	0.92	1.08	1.08	0.78	1.35	
	Os02g0302700 AK060537	OsNAAT2	1.01	0.89	0.89	1.00	0.80	0.80	
	Os02g0302400 CI220718	OsNAAT3	0.97	0.91	1.08	1.02	0.99	1.09	
	Os06g0345200 AK107186	OsNAAT4	0.84	0.81	0.89	0.74	0.72	0.97	
	Os06g0345200 AK108576	OsNAAT4	0.97	1.18	1.22	0.95	0.96	1.15	
	Os11g0644800 CI019806	OsNAAT5	0.97	0.92	1.09	1.07	0.96	1.09	
	Os03g0237100 AK073738	OsDMAS1	0.89	0.93	1.05	1.36	0.86	1.40	
	Methionine	Os05g0135700 AK104875	OsSAM1	1.05	1.09	1.01	0.94	0.87	0.99
		Os05g0135700 AK072051	OsSAM1	1.06	1.13	1.03	0.92	0.87	1.00
		Os05g0135700 AJ296743	OsSAM1	1.05	1.11	0.98	0.92	0.86	0.99
Os05g0135700 AK103157		OsSAM1	1.03	1.07	0.98	0.91	0.88	1.00	
Os01g0323600 AK071516		OsSAMS2	0.85	0.88	0.93	1.08	0.86	1.07	
Os01g0323600 U82833		OsSAMS2	0.97	1.02	1.09	1.10	0.84	1.06	
Os06g0112200 AB110165		MTN	0.83	0.88	1.02	1.16	0.93	1.13	
Os06g0112200 AF458088		MTN	0.85	0.83	0.99	1.14	0.93	1.13	
Os06g0112200 AK066172		MTN	0.85	0.87	1.03	1.14	0.92	1.15	
Os06g0112200 AK104481		MTN	0.84	0.86	1.01	1.15	0.95	1.13	
Os06g0112200 AK104797		MTN	0.86	0.87	1.02	1.14	0.94	1.11	
Os12g0589100 AK073627		OsAPT1	1.02	0.91	1.08	1.26	0.89	1.08	
Os12g0589100 AK104107		OsAPT1	1.05	0.93	1.11	1.25	0.85	1.11	
Os12g0589100 AK104808		OsAPT1	1.02	0.94	1.12	1.28	0.88	1.06	
Os04g0669900 C1111659		MTK	0.96	0.93	1.23	1.29	0.83	1.32	
Os04g0669800 AK067649		OsMTK1	0.90	0.93	1.07	1.24	0.80	1.25	
Os04g0669800 AY593959		OsMTK1	0.89	0.89	1.05	1.31	0.84	1.29	
Os11g0216900 AK060326		OsIDI2	0.87	1.03	0.94	3.19	1.76	2.91	
Os11g0216900 AK060549		OsIDI2	0.82	0.86	1.03	1.10	1.00	1.13	
Os11g0216900 AK100869		OsIDI2	0.80	0.82	1.00	1.09	0.99	1.13	
Os04g0306400 AK103443		RPI	0.87	0.96	1.15	1.09	0.79	1.30	
Os11g0484000 AK065321		DEP	1.02	0.87	1.05	1.27	0.89	1.28	
Os10g0419400 AK103834		OsDIL1/OsADR1	0.95	0.99	1.36	3.18	1.45	4.36	
Os03g0161800 AK061653		OsIDI1/OsARD2	0.89	0.88	0.98	1.24	0.93	1.31	
Os03g0161800 AK099497		OsIDI1/OsARD2	0.78	0.83	0.92	1.15	0.89	1.20	
Os06g0486900 AK064610		FDH	1.14	1.83	2.71	0.77	0.92	1.75	
Os06g0486800 AB019533		FDH	1.17	0.96	1.12	1.29	0.77	1.33	
Os06g0486800 AK065872		FDH	1.33	1.08	1.22	1.35	0.86	1.42	
Os06g0486800 AK104788		FDH	1.30	1.08	1.22	1.34	0.84	1.48	
Os09g0453800 AK119212		OsIDI4	0.98	0.93	1.20	1.18	0.79	1.39	
Os09g0453800 AK120288		OsIDI4	0.85	0.85	1.03	1.13	0.86	1.36	
Os02g0714600 AK068469		PRPPs	0.80	0.80	0.98	1.11	0.71	1.13	
Os02g0714600 AK103643		PRPPs	0.80	0.78	0.92	1.18	0.74	1.17	
Os02g0714600 AK104867	PRPPs	0.80	0.80	0.97	1.14	0.72	1.13		
Transporter	Os01g0238700 AK121040	OsYSL1	0.97	1.18	1.00	1.02	1.10	1.11	
	Os02g0649900 C1446246	OsYSL2	1.08	0.78	1.75	1.16	1.51	1.86	
	Os05g0251900	OsYSL3	1.01	0.84	1.22	1.02	0.87	0.82	
	Os05g0252000 AK068865	OsYSL4	0.96	1.18	1.22	1.02	1.11	1.50	
	Os04g0390600 AK108750	OsYSL5	1.10	1.13	1.06	1.12	1.03	1.19	
	Os04g0390500 AK100148	OsYSL6	1.04	0.95	1.05	1.03	0.95	1.06	
	Os02g0116300 AK070691	OsYSL7	0.86	0.92	0.95	0.90	0.83	0.76	
	Os02g0116300 AK100087	OsYSL7	0.87	0.99	1.01	0.93	0.84	0.73	
	Os02g0116400 AK072347	OsYSL8	0.46	1.07	0.75	0.70	0.90	0.87	
	Os04g0542200 AK120923	OsYSL9	0.93	0.98	1.21	1.38	0.95	1.44	
	Os04g0542200 AY512581	OsYSL9	1.01	1.02	1.17	1.45	1.09	1.55	
	Os04g0674600 AK069645	OsYSL10	0.83	2.41	1.21	1.44	0.62	0.95	
	Os04g0524900	OsYSL11	0.95	1.09	1.22	1.01	1.11	1.41	
	Os04g0524600 AK069437	OsYSL12	1.50	1.52	1.62	2.31	2.46	2.19	
	Os04g0524500 AK067235	OsYSL13	1.28	1.19	1.35	1.29	1.32	1.15	
	Os02g0633300 AK058249	OsYSL14	1.11	0.97	1.04	1.10	1.05	0.94	
	Os02g0650300 AK063464	OsYSL15	4.31	5.03	5.36	3.62	1.34	6.09	
	Os04g0542800 AK070304	OsYSL16	0.63	0.74	0.91	0.68	0.57	0.63	
	Os04g0542800 AY512582	OsYSL16	0.70	0.75	0.88	0.69	0.63	0.63	
	Os08g0280300	OsYSL17	0.94	1.83	0.93	0.61	1.27	1.00	
Os01g0829900 AK070618	OsYSL18	0.95	1.04	1.21	1.14	0.96	1.09		
Os01g0829900 AY512583	OsYSL18	0.94	0.97	0.98	0.88	0.96	1.10		
Transcription factor	Os01g0952800 AK073385	OsIRO2	1.16	1.16	1.18	1.17	1.07	1.31	
	Os01g0952800 AK108392	OsIRO2	1.22	1.22	1.21	1.15	1.07	1.21	
	Os08g0101000 AK107456	IDEF1	0.97	0.97	1.07	0.96	1.01	1.11	
	Os05g0426200 AK065065	IDEF2	0.88	0.88	0.98	1.06	1.08	1.08	
	Os05g0426200 AK099540	IDEF2	0.89	0.88	0.98	1.07	1.10	1.06	

Ratio was calculated as (signal values of OXOs, OXHv or RNAi sample)/(signal values of vector control (VC) sample). TOM family genes, ENA family genes and the genes involved in the DMA biosynthetic pathway (DMA), methionine cycle (methionine), Fe transport (transporter) and transcription factors involved in Fe deficiency response (transcription factor) are listed. Pink indicates that gene expression was up-regulated and blue that gene expression was down-regulated compared to the expression levels of non-transcriptant rice. Italic means the expression ratio was up- or down regulated although P value log ratio was higher than 0.001.

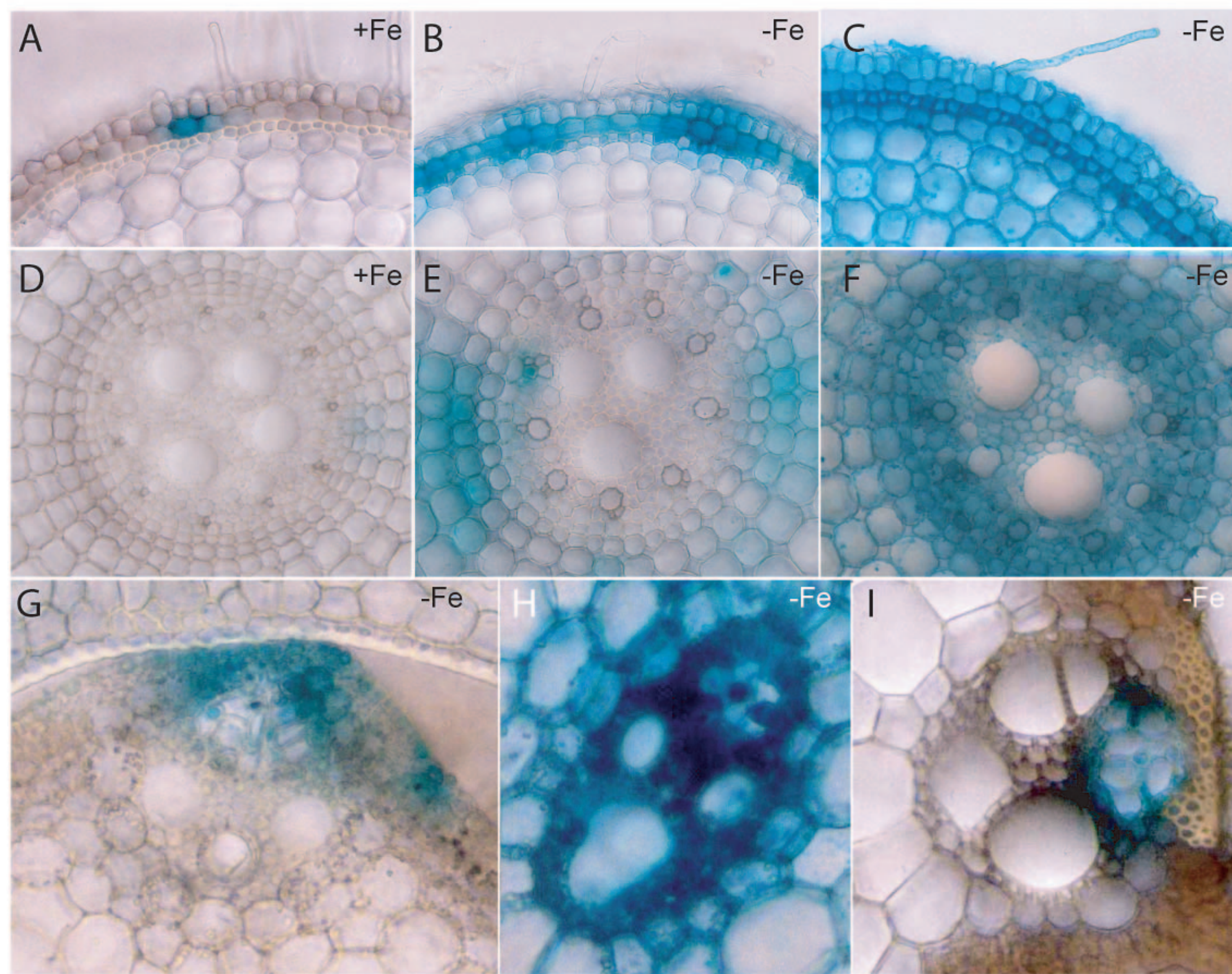


Fig. S1. Tissue distribution of TOM1. (A, D) Under Fe-sufficient conditions, TOM1 expression was observed only in part of the exodermis (A) but not in the cortex, endodermis and the central cylinder (D). (B, E) After 3 d under Fe-deficient conditions, TOM1 expression was observed in the exodermis, epidermis (B), and endodermis (E). After 10 days of Fe-deficiency, TOM1 expression was strongly induced in the exodermis, epidermis and root hair (C), as well as in the endodermis and central cylinder (F). After 10 days, TOM1 expression was also observed in the vascular bundles of the leaf sheath (G, H) and in phloem cells of the leaf (I).

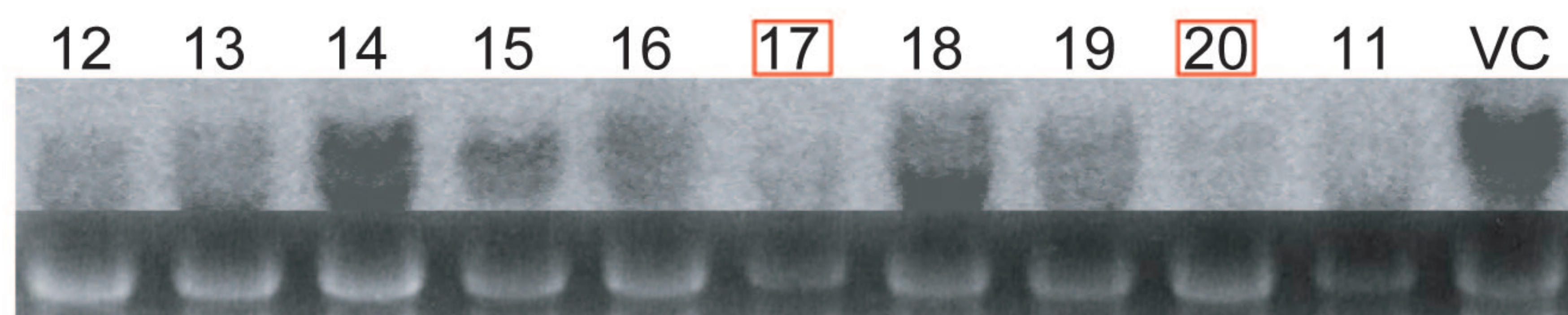


Fig. S2. Northern blot analysis of the RNAi lines using *TOMI* 3'-uncoding region. Red boxes indicated the lines for further experiments.

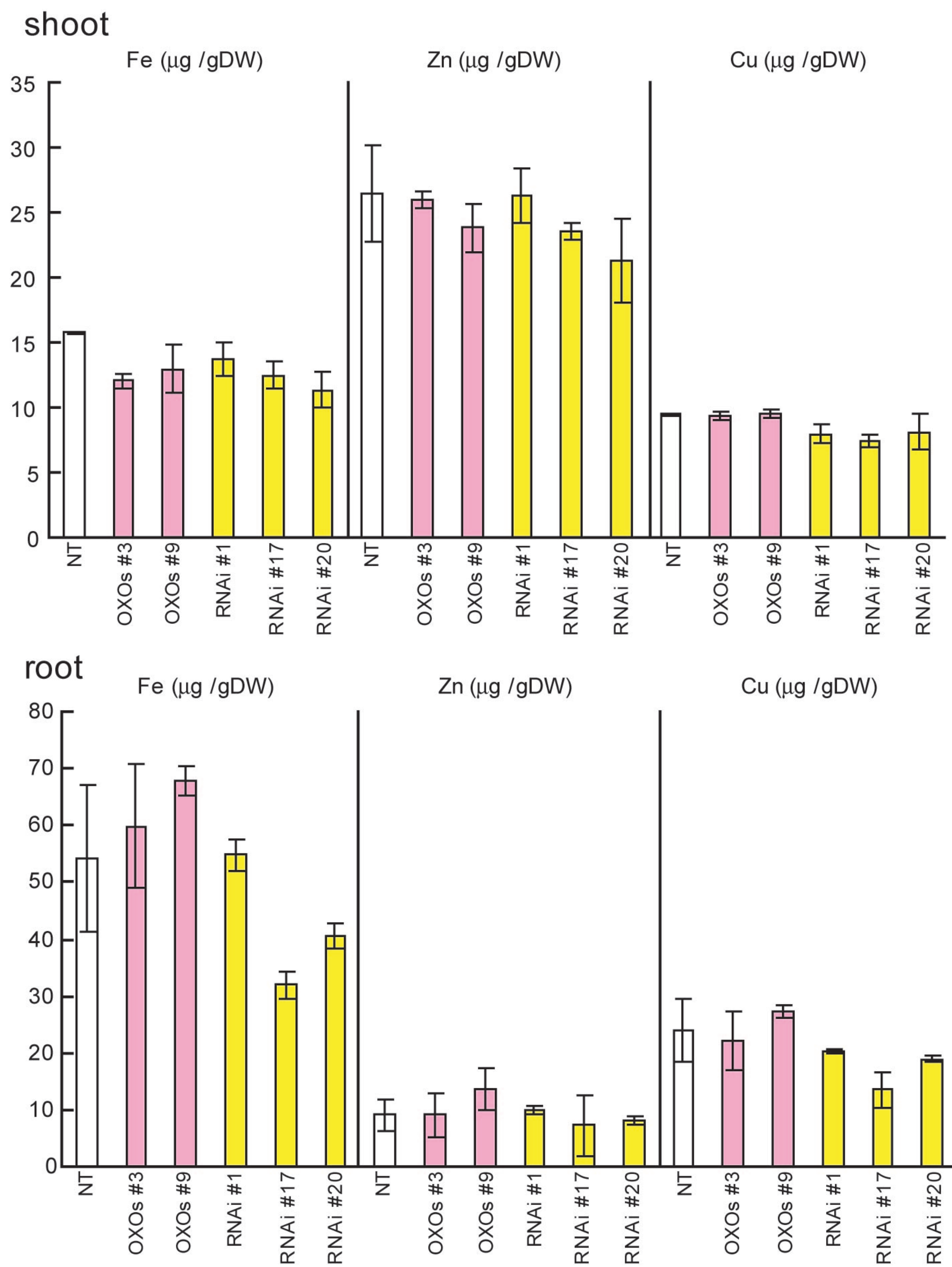


Fig. S3. Fe, Zn and Cu contents in the Fe deficient rice roots and shoots of OXOs, RNAi and NT.