

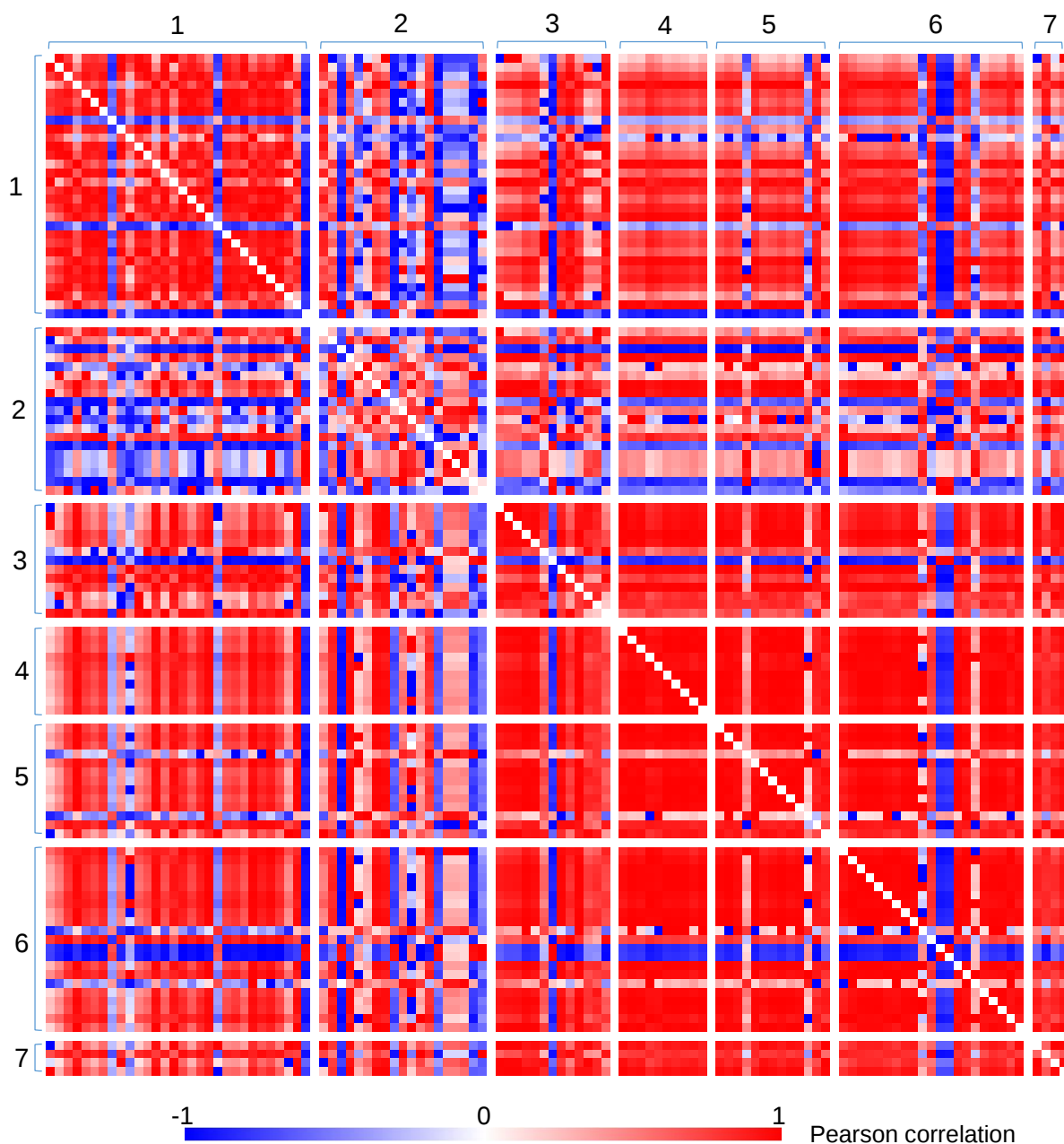


Figure S1. Pearson correlation among DEGs of photosynthesis-related genes at the transcriptional level. The $\log_2$ transformed transcript levels (FPKM values) were used for plotting. 1 Chlorophyll biosynthesis; 2 Chlorophyll degradation; 3 Cytochrome complexes and soluble electron carriers; 4 Photosystem I; 5 Photosystem II; 6 Light harvesting complexes I and II; 7 ATP synthase

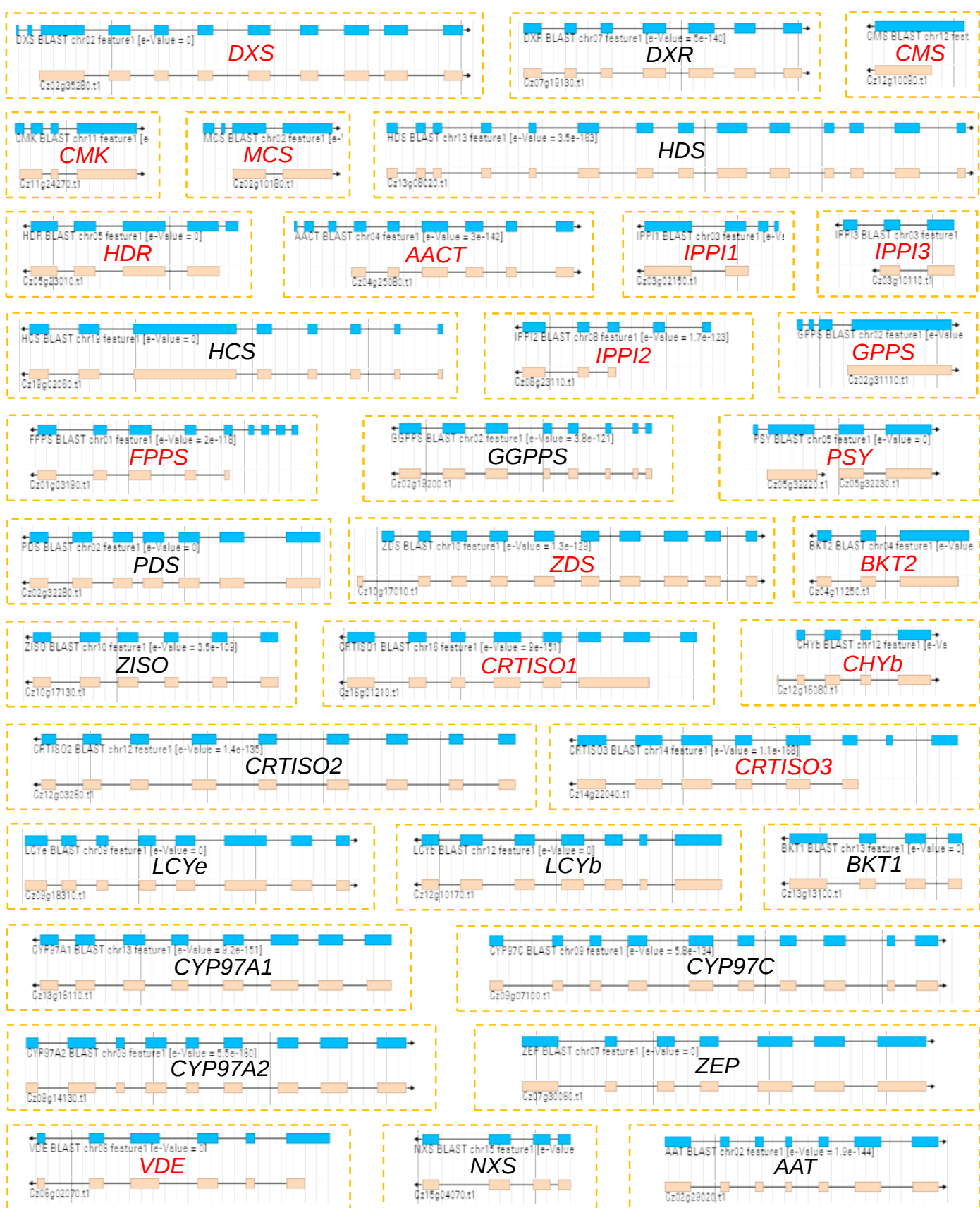
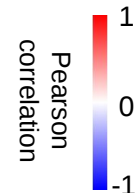


Figure S2. Comparison between carotenogenic genes predicted from Roth et al [26] and ours. The gene models from Roth et al [26] and us are on the bottom and top of each panel, respectively. The different gene models are designated in red.



		DXR	MCS	AAC	HCS	IPPI	PDS	ZISO	CRTISO	CRTISO	LCYe	LCYb	CYP97A	CYP97C	CYP97A	CHYb	BKT1	BKT2	VDE	AAT?
		Cz07g19130	Cz02g10180	Cz04g25080	Cz19g02060	Cz03g10110	Cz02g32280	Cz10g17130	Cz16g01210	Cz14g22040	Cz09g18310	Cz12g10170	Cz13g16110	Cz09g07100	Cz09g14130	Cz12g16080	Cz13g13100	Cz04g11250	Cz06g02070	Cz02g29020
<i>bHLH</i>	Cz03g20070		0.780	0.919	0.813	0.744	-0.824	-0.874	-0.899	0.967	-0.941	0.835	-0.815	-0.799	-0.879	0.826	0.950	0.853	-0.826	0.849
<i>bZIP</i>	Cz15g21170	0.033	0.989	0.495	0.944	0.985	-0.455	-0.759	-0.465	0.737	-0.700	0.978	-0.323	-0.372	-0.468	0.881	0.795	0.378	-0.391	0.971
<i>C3H</i>	Cz06g16250	-0.235	0.794	0.463	0.636	0.799	-0.290	-0.481	-0.443	0.652	-0.554	0.764	-0.311	-0.275	-0.410	0.548	0.655	0.730	-0.324	0.756
<i>ERF</i>	Cz01g39200	-0.808	0.586	0.887	0.603	0.546	-0.750	-0.734	-0.891	0.890	-0.850	0.651	-0.839	-0.793	-0.865	0.645	0.846	0.960	-0.826	0.668
<i>MYB</i>	Cz06g23090	-0.075	0.948	0.606	0.976	0.927	-0.602	-0.874	-0.589	0.809	-0.799	0.970	-0.473	-0.537	-0.602	0.964	0.865	0.368	-0.544	0.970
<i>MYB_related</i>	Cz10g11010	-0.737	0.712	0.960	0.784	0.665	-0.878	-0.908	-0.958	0.985	-0.971	0.790	-0.897	-0.888	-0.946	0.838	0.963	0.857	-0.908	0.808
<i>NF-YC</i>	Cz09g09270	-0.117	0.957	0.665	0.998	0.942	-0.679	-0.885	-0.614	0.822	-0.822	0.972	-0.489	-0.543	-0.617	0.954	0.868	0.365	-0.551	0.974
<i>Nin-like</i>	Cz01g40030	-0.519	0.876	0.892	0.925	0.842	-0.835	-0.944	-0.865	0.979	-0.964	0.926	-0.768	-0.780	-0.856	0.931	0.983	0.724	-0.800	0.938
<i>Nin-like</i>	Cz02g38280	-0.169	0.956	0.577	0.885	0.942	-0.470	-0.760	-0.577	0.816	-0.753	0.961	-0.448	-0.470	-0.574	0.854	0.852	0.619	-0.499	0.955
<i>C2H2</i>	Cz03g00060	-0.964	-0.110	0.717	0.027	-0.159	-0.663	-0.356	-0.723	0.477	-0.503	-0.009	-0.784	-0.716	-0.698	0.135	0.387	0.678	-0.724	0.022
<i>C3H</i>	Cz11g29050	-0.391	0.804	0.780	0.895	0.755	-0.754	-0.960	-0.808	0.920	-0.921	0.882	-0.744	-0.798	-0.830	0.978	0.950	0.561	-0.801	0.892
<i>MYB</i>	Cz10g22030	-0.774	0.653	0.974	0.754	0.598	-0.904	-0.923	-0.985	0.982	-0.979	0.747	-0.943	-0.939	-0.979	0.839	0.959	0.837	-0.954	0.768
<i>MYB_related</i>	Cz02g14080	-0.124	0.595	0.377	0.605	0.549	-0.303	-0.648	-0.484	0.623	-0.587	0.661	-0.451	-0.512	-0.525	0.733	0.671	0.412	-0.515	0.658
<i>MYB_related</i>	Cz12g20020	-0.685	-0.422	0.429	-0.177	-0.488	-0.487	-0.237	-0.494	0.192	-0.274	-0.284	-0.630	-0.631	-0.517	0.038	0.136	0.189	-0.600	-0.253
<i>GATA</i>	Cz01g14140	-0.827	0.590	0.986	0.701	0.536	-0.919	-0.891	-0.991	0.960	-0.962	0.687	-0.958	-0.946	-0.982	0.785	0.927	0.847	-0.960	0.710
<i>MYB</i>	Cz02g00230	-0.977	0.006	0.782	0.132	-0.042	-0.717	-0.440	-0.783	0.568	-0.586	0.104	-0.826	-0.760	-0.756	0.230	0.482	0.745	-0.772	0.135
<i>MYB</i>	Cz15g15180	-0.938	0.260	0.846	0.327	0.219	-0.740	-0.549	-0.836	0.711	-0.699	0.337	-0.833	-0.763	-0.802	0.382	0.636	0.879	-0.788	0.362
<i>B3</i>	Cz19g00290	-0.946	0.332	0.956	0.480	0.271	-0.900	-0.761	-0.969	0.838	-0.857	0.446	-0.980	-0.952	-0.958	0.598	0.782	0.815	-0.961	0.476
<i>bZIP</i>	Cz10g29130	-0.989	0.084	0.820	0.199	0.032	-0.738	-0.501	-0.830	0.637	-0.646	0.184	-0.865	-0.801	-0.805	0.303	0.555	0.808	-0.816	0.214
<i>ERF</i>	Cz03g16250	-0.987	0.144	0.842	0.250	0.092	-0.751	-0.539	-0.854	0.680	-0.683	0.243	-0.880	-0.818	-0.829	0.350	0.601	0.844	-0.835	0.272
<i>MYB</i>	Cz06g08120	-0.955	0.044	0.776	0.150	0.002	-0.704	-0.425	-0.763	0.566	-0.578	0.129	-0.792	-0.719	-0.730	0.221	0.479	0.755	-0.736	0.158
<i>MYB</i>	Cz06g09120	-0.968	0.271	0.911	0.385	0.219	-0.831	-0.651	-0.914	0.773	-0.779	0.370	-0.923	-0.872	-0.891	0.478	0.704	0.854	-0.888	0.399
<i>MYB</i>	Cz13g11180	-0.981	0.162	0.862	0.279	0.110	-0.786	-0.564	-0.865	0.692	-0.702	0.260	-0.888	-0.829	-0.840	0.374	0.614	0.820	-0.844	0.290
<i>MYB_related</i>	Cz16g11010	-0.939	-0.202	0.603	-0.110	-0.246	-0.514	-0.211	-0.623	0.374	-0.379	-0.113	-0.691	-0.607	-0.595	-0.005	0.277	0.696	-0.621	-0.084
<i>MYB_related</i>	Cz16g11050	-0.960	0.133	0.810	0.221	0.090	-0.719	-0.480	-0.803	0.634	-0.634	0.217	-0.820	-0.748	-0.770	0.291	0.552	0.824	-0.768	0.245
<i>MYB</i>	Cz10g24240	-0.485	0.865	0.875	0.937	0.824	-0.834	-0.979	-0.869	0.981	-0.974	0.929	-0.783	-0.713	-0.871	0.975	0.995	0.670	-0.825	0.941
<i>B3</i>	Cz02g09060	0.448	0.764	-0.053	0.559	0.803	0.139	-0.201	0.093	0.245	-0.158	0.670	0.250	0.232	0.106	0.399	0.309	0.125	0.198	0.644
<i>B3</i>	Cz17g02030	0.260	0.865	0.162	0.688	0.896	-0.071	-0.367	-0.108	0.427	-0.346	0.786	0.058	0.048	-0.087	0.530	0.479	0.287	0.011	0.766
<i>bZIP</i>	Cz04g21220	-0.205	0.861	0.517	0.731	0.871	-0.382	-0.551	-0.466	0.686	-0.607	0.826	-0.320	-0.294	-0.431	0.617	0.695	0.663	-0.338	0.820
<i>C3H</i>	Cz14g01180	0.158	0.551	-0.017	0.299	0.593	0.186	-0.011	0.055	0.191	-0.075	0.457	0.189	0.237	0.095	0.134	0.240	0.392	0.185	0.435
<i>G2-like</i>	Cz04g05020	-0.101	0.802	0.354	0.622	0.814	-0.184	-0.423	-0.338	0.581	-0.477	0.759	-0.199	-0.171	-0.309	0.522	0.596	0.642	-0.220	0.746
<i>G2-like</i>	Cz19g10020	0.147	0.474	-0.042	0.224	0.521	0.201	0.064	0.098	0.123	-0.013	0.372	0.228	0.287	0.146	0.041	0.126	0.356	0.235	0.352
<i>GATA</i>	Cz06g37150	0.300	0.916	0.200	0.781	0.941	-0.146	-0.470	-0.148	0.475	-0.413	0.850	0.015	-0.019	-0.139	0.642	0.540	0.211	-0.046	0.832
<i>MYB</i>	Cz14g00040	-0.065	0.797	0.334	0.614	0.817	-0.178	-0.387	-0.295	0.541	-0.442	0.741	-0.148	-0.117	-0.260	0.485	0.556	0.592	-0.165	0.728
<i>SBP</i>	Cz02g40170	-0.153	0.740	0.343	0.552	0.749	-0.155	-0.378	-0.339	0.560	-0.450	0.701	-0.211	-0.173	-0.308	0.465	0.567	0.690	-0.224	0.689
<i>bHLH</i>	UNPLg00160	-0.710	0.732	0.970	0.816	0.688	-0.907	-0.927	-0.953	0.985	-0.980	0.807	-0.887	-0.882	-0.940	0.858	0.967	0.810	-0.900	0.825
<i>bZIP</i>	UNPLg00449	-0.229	0.945	0.619	0.861	0.943	-0.512	-0.710	-0.576	0.799	-0.737	0.931	-0.432	-0.428	-0.552	0.777	0.818	0.655	-0.465	0.927
<i>B3</i>	Cz03g17040	-0.777	0.361	0.902	0.570	0.290	-0.910	-0.861	-0.939	0.830	-0.879	0.495	-0.963	-0.986	-0.956	0.734	0.807	0.598	-0.976	0.523
<i>GATA</i>	Cz02g12190	-0.955	0.032	0.792	0.200	-0.041	-0.733	-0.577	-0.860	0.650	-0.674	0.171	-0.931	-0.903	-0.865	0.392	0.586	0.728	-0.903	0.201
<i>SBP</i>	Cz15g08240	-0.813	0.495	0.959	0.656	0.429	-0.924	-0.905	-0.990	0.924	-0.946	0.616	-0.987	-0.995	-0.997	0.792	0.897	0.746	-0.997	0.642
<i>GATA</i>	Cz02g09070	0.644	-0.748	-0.943	-0.853	-0.695	0.898	0.978	0.950	-0.994	0.997	-0.835	0.894	0.913	0.953	-0.929	-0.991	-0.740	0.923	-0.853
<i>GATA</i>	Cz05g04080	0.564	-0.813	-0.934	-0.913	-0.773	0.912	0.979	0.906	-0.979	0.988	-0.880	0.827	0.847	0.902	-0.941	-0.981	-0.668	0.858	-0.897
<i>bHLH</i>	Cz10g09160	0.264	-0.971	-0.738	-0.982	-0.950	0.694	0.903	0.708	-0.904	0.880	-0.995	0.585	0.618	0.705	-0.956	-0.936	-0.570	0.637	-0.998
<i>ERF</i>	Cz10g10110	0.396	-0.856	-0.664	-0.769	-0.841	0.510	0.699	0.661	-0.837	0.760	-0.866	0.544	0.525	0.639	-0.738	-0.840	-0.818	0.566	-0.866
<i>GATA</i>	Cz11g08060	0.759	-0.352	-0.651	-0.290	-0.329	0.463	0.395	0.659	-0.632	0.562	-0.387	0.620	0.534	0.617	-0.300	-0.568	-0.947	0.579	-0.399
<i>LSD</i>	Cz02g13260	0.311	-0.872	-0.808	-0.973	-0.845	0.841	0.950	0.751	-0.882	0.906	-0.913	0.650	0.697	0.752	-0.958	-0.910	-0.425	0.700	-0.925
<i>MYB_related</i>	Cz14g14020	0.758	-0.690	-0.959	-0.760	-0.641	0.870	0.896	0.962	-0.981	0.965	-0.770	0.906	0.894	0.950	-0.821	-0.956	-0.874	0.915	-0.789
<i>ERF</i>	Cz10g18210	0.577	-0.827	-0.921	-0.902	-0.784	0.869	0.970	0.911	-0.995	0.989	-0.895	0.832	0.848	0.908	-0.942	-0.997	-0.736	0.864	-0.910
<i>MYB_related</i>	Cz11g12210	0.496	-0.822	-0.898	-0.933	-0.779	0.891	0.996	0.881	-0.966	0.981	-0.893	0.805	0.841	0.885	-0.975	-0.980	-0.599	0.847	-0.908
<i>CPP</i>	Cz02g27040	0.186	-0.716	-0.381	-0.540	-0.735	0.216	0.350	0.333	-0.534	0.437	-0.664	0.197	0.146	0.289	-0.410	-0.529	-0.659	0.198	-0.655
<i>CPP</i>	Cz15g07260	-0.241	-0.459	0.137	-0.192	-0.507	-0.300	-0.112	-0.175	-0.066	-0.051	-0.353	-0.303	-0.353	-0.216	-0.017	-0.079	-0.300	-0.303	-0.329
<i>MYB</i>	Cz01g31240	-0.271	-0.797	-0.100	-0.598	-0.836	-0.002	0.263	0.038	-0.348	0.260	-0.706	-0.127	-0.132	0.009	-0.420	-0.391	-0.279	-0.091	-0.685
<i>MYB_related</i>	Cz01g15230	0.070	-0.659	-0.228	-0.445	-0.683	0.045	0.227	0.200	-0.421	0.309	-0.596	0.068	0.017	0.160	-0.316	-0.424	-0.600	0.071	-0.581
<i>NF-YC</i>	Cz01g10020	0.060	-0.676	-0.233	-0.463	-0.700	0.054	0.240	0.202	-0.428	0.317	-0.611	0.067	0.019						

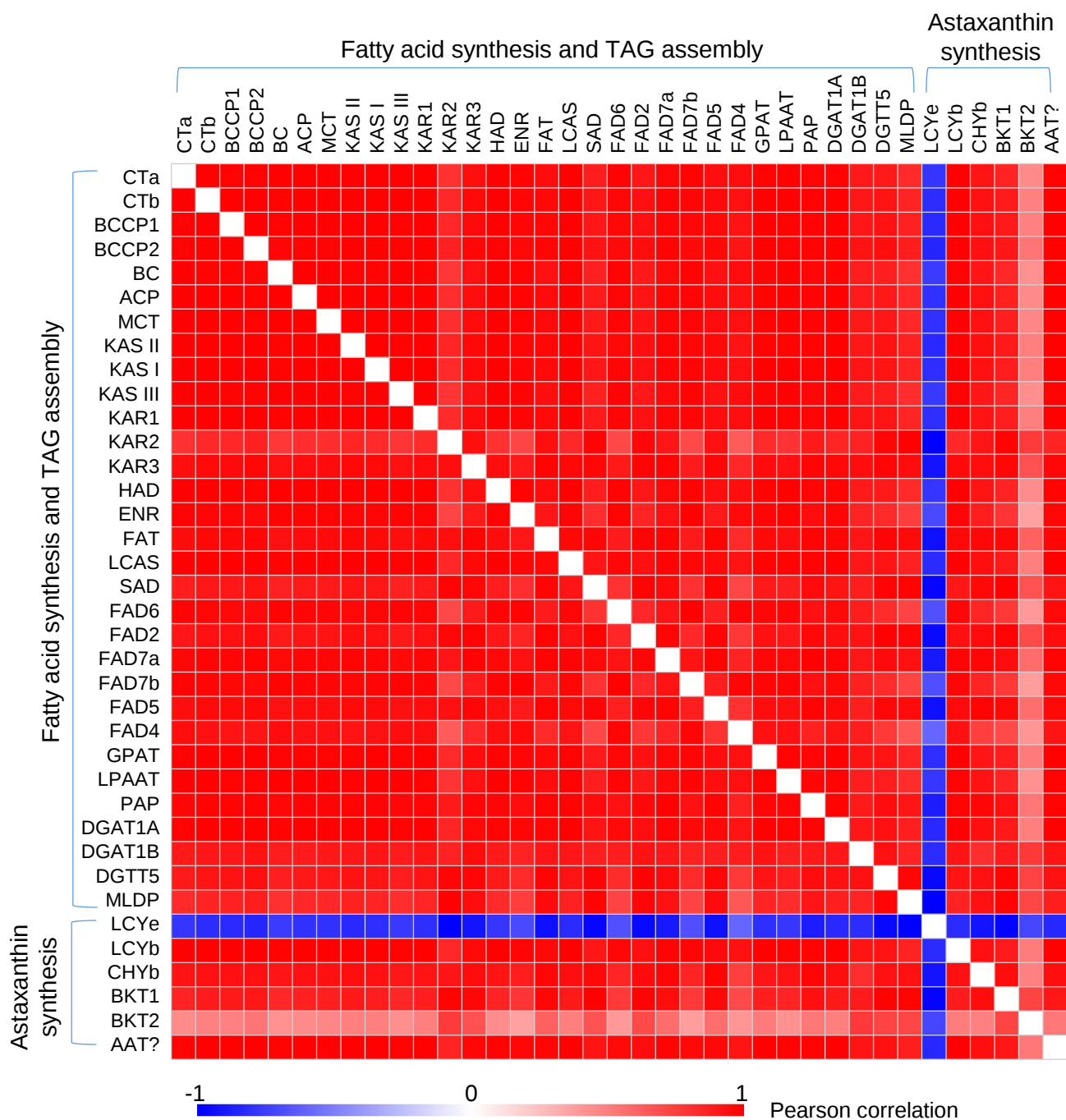


Figure S4. Pearson correlation among DEGs of astaxanthin synthesis, fatty acid synthesis and TAG assembly at the transcriptional level. The $\log_2$ transformed transcript levels (FPKM values) were used for plotting.