Supplementary Table 1. Overview of all identified calcium dependent phosphorylated proteins and EGTA dependent phosphorylated proteins.

Calcium

#	ID	AGI code	Description	Species	pro-Q	p-Thr	PhosPhat	Experiment
1	PsaN	At5g64040	Subunit N of photosystem I	At	4	4	y	(3)(4)(5)(6)(7)
2	CAS	At5g23060	'Calcium sensing' protein	Ps/At	2	1	y	(1)(2)(4)
3	VAR1/ VAR2	At5g42270/ At2G30950	Variegated 1 and 2, FtsH proteases	Ps/At	2	0	y/n	(1)(4)
4	PsbP-1	At1g06680	Subunit P-1 of photosystem II	At	1	1	y	(2)(7)
5	PsaH-2	At1g52230	Subunit H-2 of photosystem I	At	1	1	n	(3)(4)
6	PsbO-1	At5g66570	Subunit O-1 of photosystem II	At	0	1	n	7
7	PsbQ-2	At4g05180	Subunit Q-2 of photosystem II	At	0	1	y	3
8	PsbQ-1	At4g21280	Subunit Q-1 of photosystem II	At	0	1	y	3
9	PsaC	AtCg01060	Subunit C of photosystem I	At	0	1	n	7
10	PsaP	At2g46820	Subunit P of photosystem I	At	1	0	y	4
11	ATPF	AtCg00130	ATPase subunit F	At	0	1	n	3
12	PTAC16	At3g46780	Plastid transcriptionally active 16	At	0	1	y	6
13	Unknown1	At4g27700	Cell cycle control phosphatase superfamily	At	0	1	n	7
14	Unknown2	At3g63170	Chalcone-flavanone isomerase family protein	At	0	1	n	7

EGTA

#	ID	AGI code	Description	Species	pro-Q	p-Thr	PhosPhat	Experiment
1	ATPC1	At4g04640	ATPase subunit gamma	At	1	0	y	4
2	FNR2	At1g20020	ferredoxin:NADP(H) oxidoreductase 2	At	0	1	n	6
3	Unknown3	At2g37660	3-beta hydroxysteroid dehydrogenase /isomerase family protein	At	0	1	y	7
4	PsaG	At1g55670	Subunit G of photosystem I	At	0	1	n	2
5	MFP1	At3g16000	MAR binding filament-like protein 1	At	0	1	y	3

Indicated is in which species the proteins were identified (At = *Arabidopsis thaliana;* Ps = *Pisum sativum*), which stain was used to reveal the phosphorylated proteins (Pro-Q = Pro-Q Diamond phosphoprotein gel stain; pThr = phosphor-Threonine specific antibody), if the protein is included in the phospho-peptide database PhosPhat 3.0 (Durek *et al.*, 2010; Heazlewood *et al.*, 2008), and in which experiment the protein was identified. Images to the seven experiments are included in the supplementary figures.

Suppl. Fig. S1. Experiment 1. Pea thylakoid proteins phosphorylated in the presence of 1 mM Ca^{2+} or 1 mM EGTA. Phosphorylated proteins were revealed with Pro-Q Diamond phosphoprotein gel stain and subsequently the gel was stained with CBB. Identified proteins are the FtsH protease, Variegated 1 (VAR1) and 'Calcium sensing' protein (CAS).

Suppl. Fig. S2. Experiment 2. Arabidopsis thylakoid proteins phosphorylated in the presence of 250 µM Ca^{2+} or 250 µM EGTA. Phosphorylated proteins were revealed with a phospho-threonine specific antibody and subsequently the gel was silver-stained. Identified proteins are 'Calcium sensing' protein (CAS), subunit P-1 of photosystem II (PsbP-1) and subunit G of photosystem I (PsaG).

Suppl. Fig. S3. Experiment 3. Arabidopsis thylakoid proteins phosphorylated in the presence of 250 µM Ca^{2+} or 250 µM EGTA. Phosphorylated proteins were revealed with a phospho-threonine specific antibody and subsequently the gel was silver-stained. Identified proteins are the ATPase subunit F (ATPF), subunit Q-1 and Q-2 of photosystem II (PsbQ1-2), subunit H-2 of photosystem I (PsaH-2), subunit N of photosystem I (PsaN) and MAR binding filament-like protein 1 (MFP1).

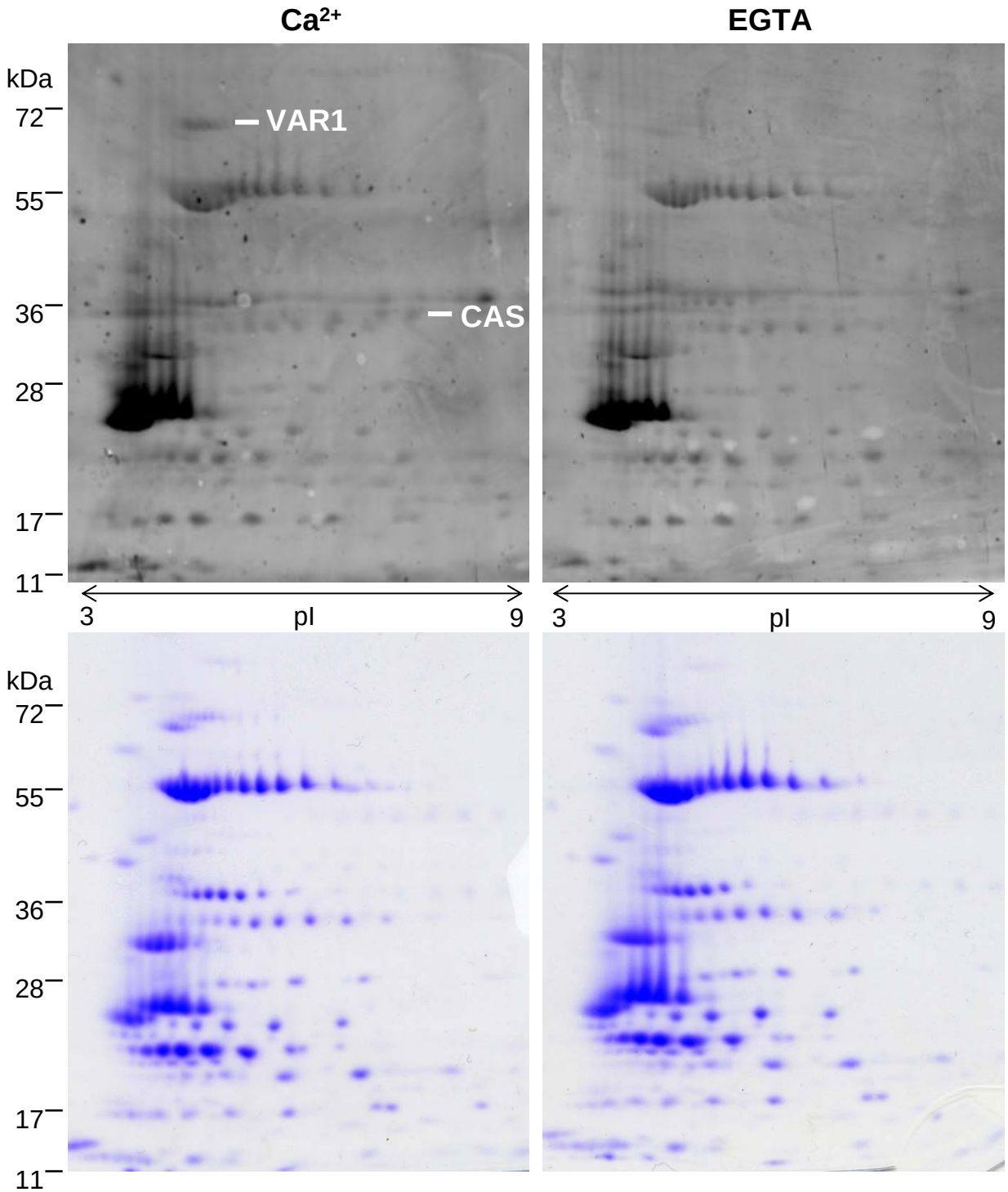
Suppl. Fig. S4. Experiment 4. Arabidopsis thylakoid proteins phosphorylated in the presence of 250 µM Ca^{2+} or 250 µM EGTA. Phosphorylated proteins were revealed with a Pro-Q Diamond phosphoprotein gel stain and subsequently the gel was silver-stained. Identified proteins are the FtsH protease, Variegated 2 (VAR2), 'Calcium sensing' protein (CAS), subunit H-2 of photosystem I (PsaH-2), subunit N of photosystem I (PsaN; three times identified), subunit P of photosystem I (PsaP) and the ATPase subunit gamma (ATPC1).

Suppl. Fig. S5. Experiment 5. Arabidopsis thylakoid proteins phosphorylated in the presence of 25 µM Ca^{2+} or 25 µM EGTA. Phosphorylated proteins were revealed with a Pro-Q Diamond phosphoprotein gel stain and subsequently the gel was silver-stained. The identified protein is subunit N of photosystem I (PsaN).

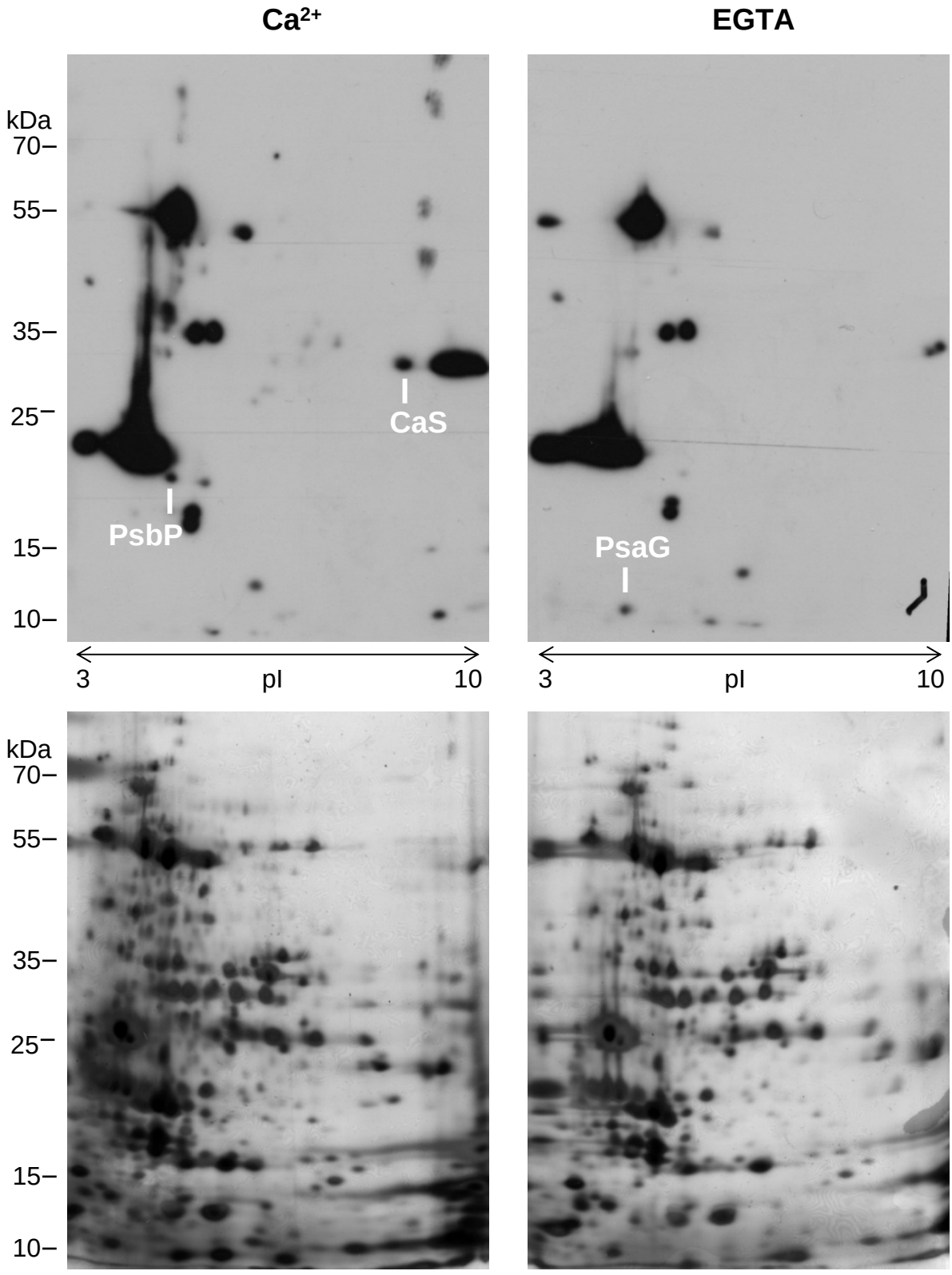
Suppl. Fig. S6. Experiment 6. Arabidopsis thylakoid proteins phosphorylated in the presence of 25 µM Ca^{2+} or 25 µM EGTA. Phosphorylated proteins were revealed with a phospho-threonine specific antibody and subsequently the gel was silver-stained. Identified proteins are Plastid transcriptionally active 16 (PTAC16), subunit N of photosystem I (PsaN; twice identified) and ferredoxin:NADP(H) oxidoreductase 2 (FNR2).

Suppl. Fig.7. Experiment 7. Arabidopsis thylakoid proteins phosphorylated in the presence of 25 µM Ca^{2+} or 25 µM EGTA. Phosphorylated proteins were revealed with a phospho-threonine specific antibody and subsequently the gel was silver-stained. Identified proteins are subunit P-1 of photosystem II (PsbP-1), subunit O-1 of photosystem II (PsbO-1), subunit C of photosystem I (PsaC), subunit N of photosystem I (PsaN), the cell cycle control phosphatase superfamily protein (Unknown 1), the chalcone-flavanone isomerase family protein (Unknown 2) and the 3-beta hydroxysteroid dehydrogenase /isomerase family protein (Unknown 3).

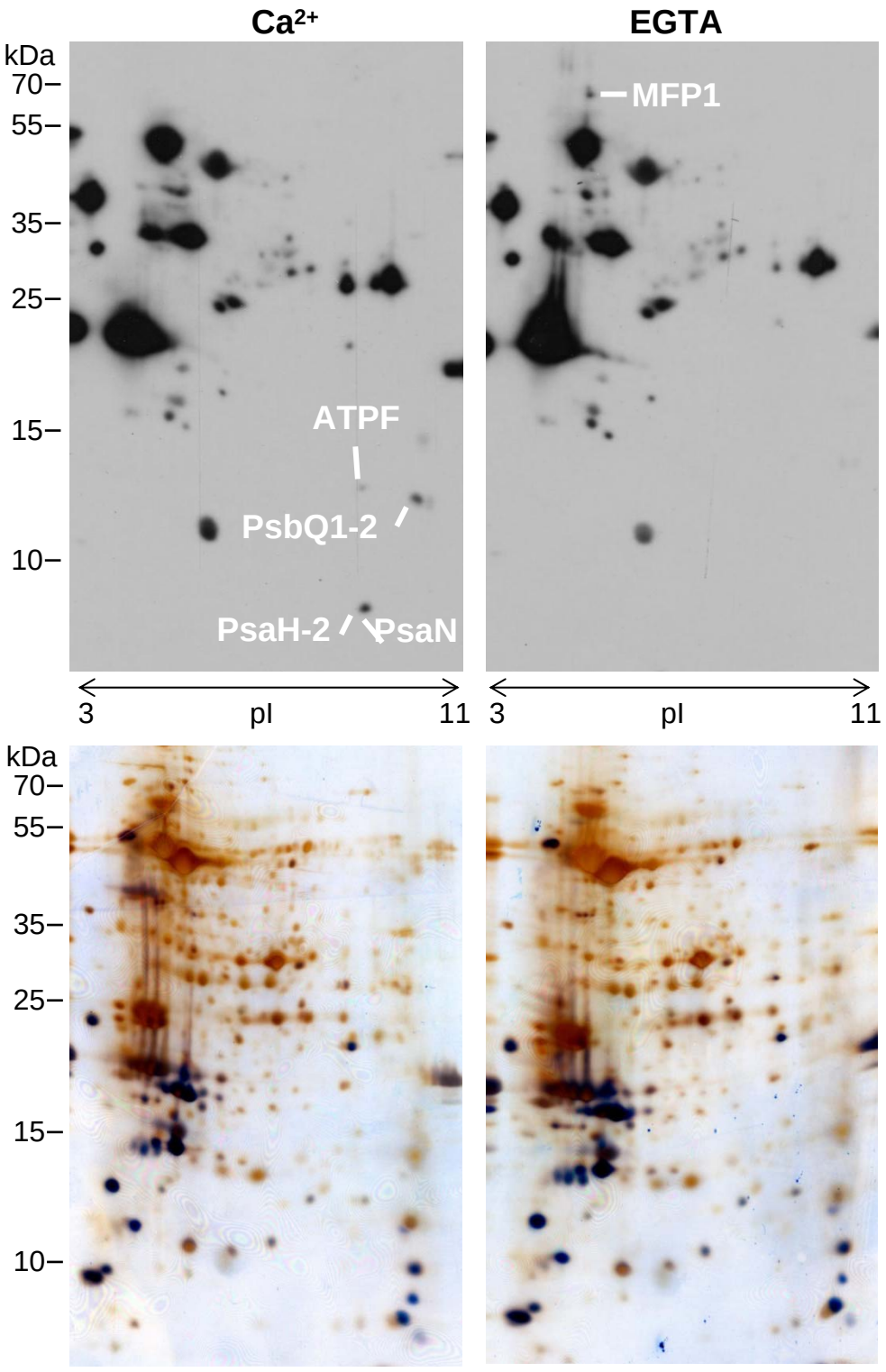
Stael et al. Supplementary figure S1



Stael et al. Supplementary figure S2



Stael et al. Supplementary figure S3



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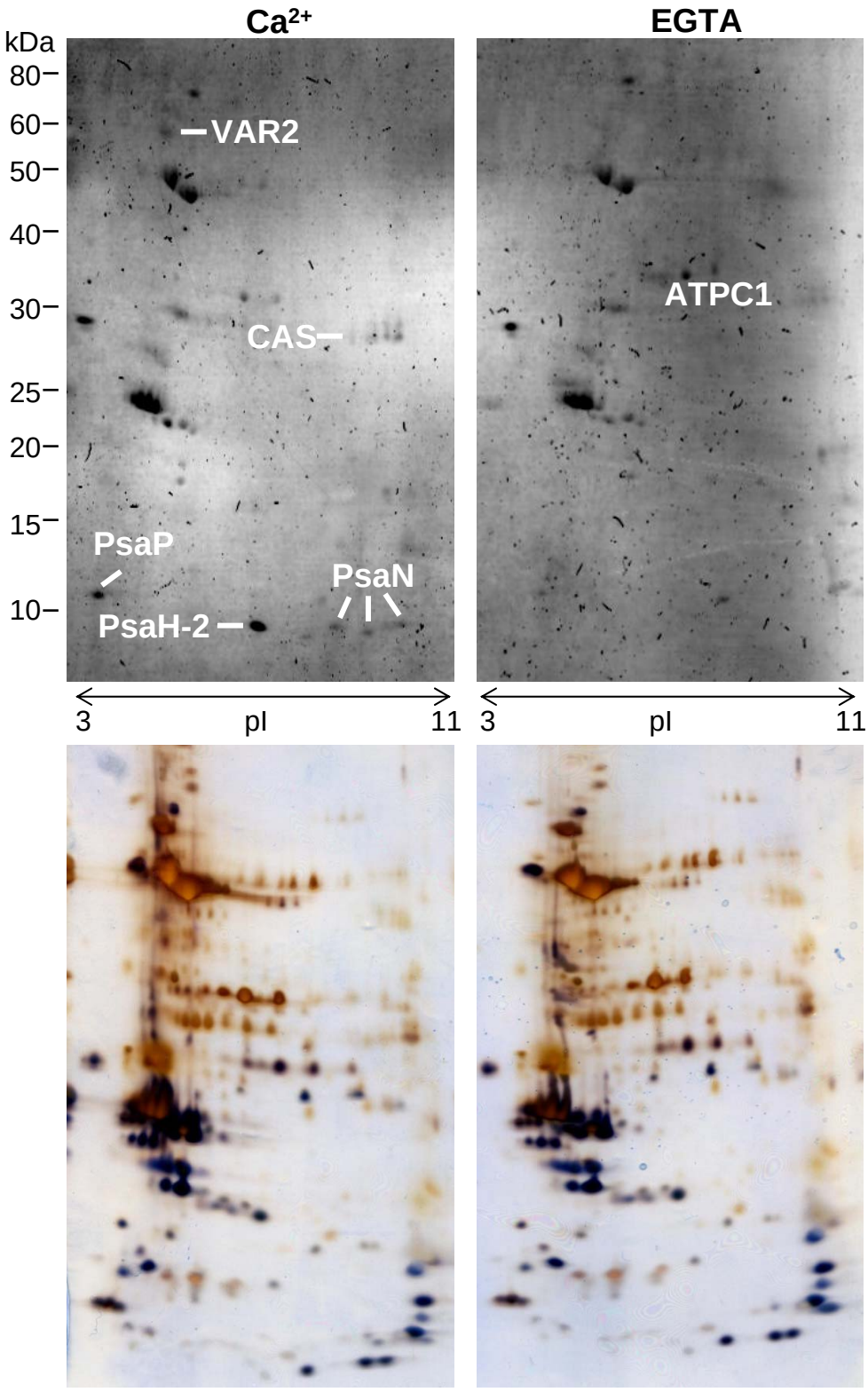

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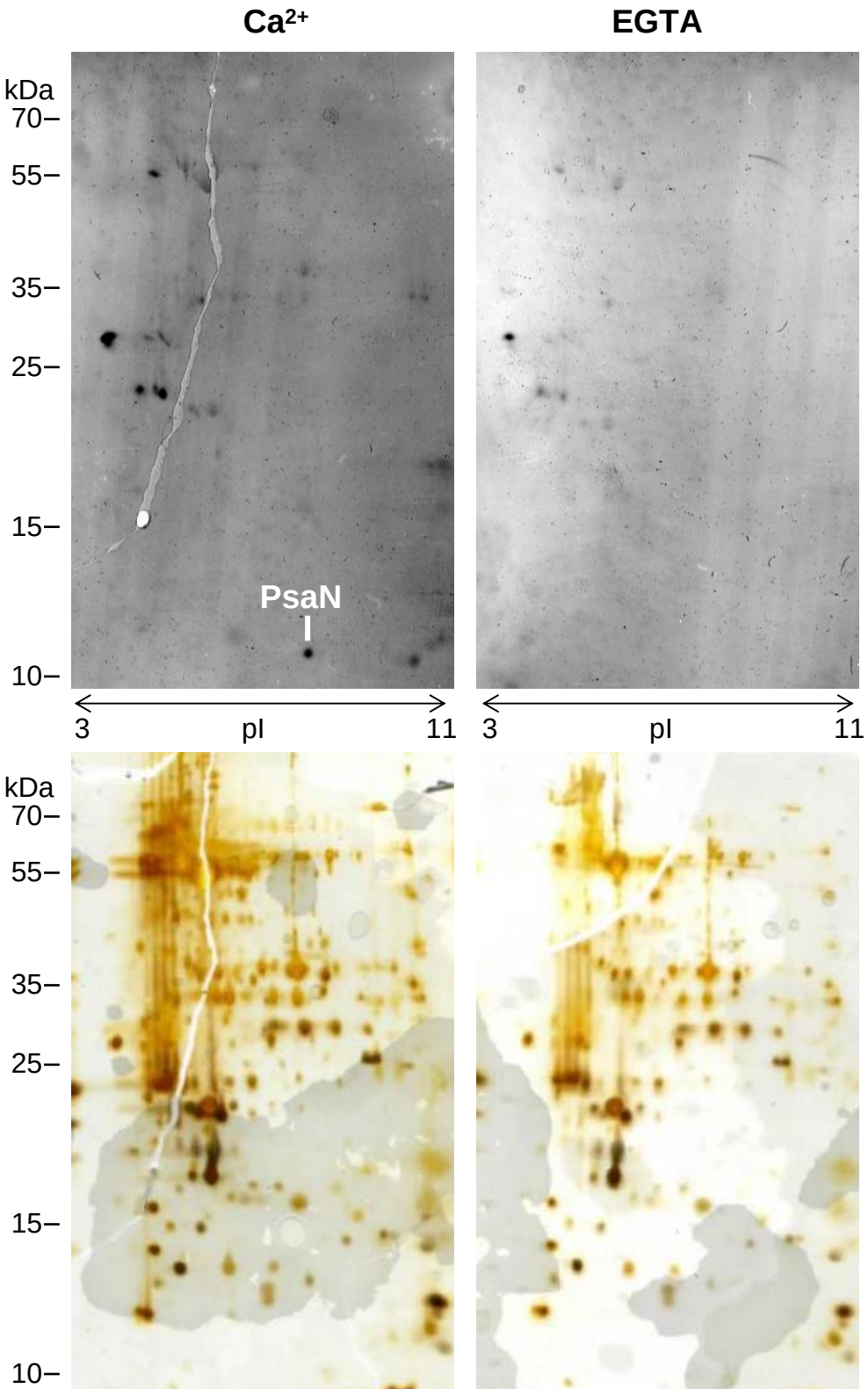
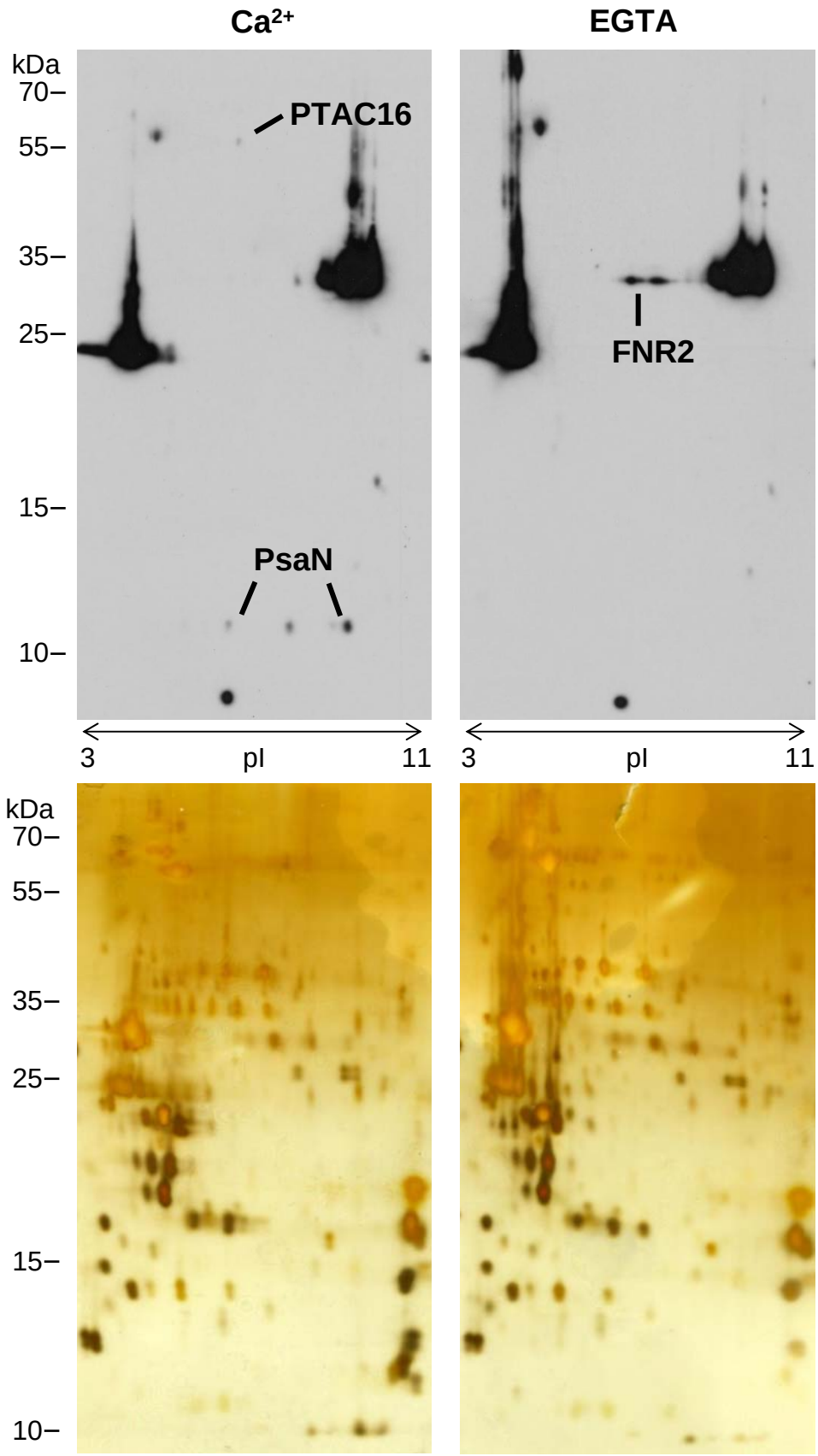


Stael et al. Supplementary figure S6



Stael et al. Supplementary figure S7