Dataset S1 Contribution of various osmotic solutes to osmotic regulation in leaves of neoallohexaploid wheat (neo-6*x*), its diploid (2*x*) and tetraploid (4*x*) parents, and natural hexaploid (nat-6*x*) in response to salt stress. The 30-day-old seedlings were subjected to 150 mM NaCl for 32 days. The percentage was expressed as ratio of each osmotic solute molarity to total molarity. The percentage is calculated according to mean value of each treatment.

	Control				Salt stress			
	2*x*	4*x*	neo-6*x*	nat-6*x*	2*x*	4*x*	neo-6*x*	nat-6*x*
Na^+ (%)	8.36	8.19	7.59	7.98	27.01	40.57	18.72	33.38
K^+ (%)	53.69	41.75	48.26	55.54	27.43	13.37	33.41	21.69
Cl^- (%)	11.96	11.22	11.35	9.29	27.46	31.02	24.56	32.32
NO_3^- (%)	12.55	10.23	10.76	10.37	1.53	0.89	0.84	0.92
$H_2PO_4^-$ (%)	2.55	2.00	1.78	1.49	1.92	0.77	1.87	0.88
SO_4^{2-} (%)	1.40	6.02	3.56	2.63	0.50	1.66	1.07	0.82
Total sugar (%)	7.10	15.66	12.86	8.75	11.67	9.47	15.31	6.27
Proline (%)	0.20	0.54	0.35	0.48	0.69	0.78	0.61	1.50
Free Asp (%)	0.44	0.64	0.58	0.49	0.26	0.19	0.48	0.27
Free Thr (%)	0.10	0.21	0.18	0.17	0.09	0.08	0.18	0.11
Free Ser (%)	0.25	0.59	0.28	0.43	0.21	0.17	0.42	0.35
Free Glu (%)	0.05	0.08	0.07	0.10	0.07	0.07	0.10	0.13
Free Gly (%)	0.04	0.15	0.06	0.07	0.02	0.02	0.04	0.03
Free Ala (%)	0.50	1.14	0.70	0.66	0.25	0.23	0.56	0.32
Free Val (%)	0.02	0.01	0.02	0.01	0.01	0.01	0.01	0.01
Free Met (%)	0.14	0.19	0.20	0.21	0.15	0.11	0.20	0.17
Free Ile (%)	0.05	0.08	0.07	0.09	0.04	0.04	0.07	0.06
Free Leu (%)	0.12	0.17	0.17	0.18	0.10	0.06	0.17	0.11
Free Tyr (%)	0.06	0.07	0.09	0.07	0.07	0.03	0.10	0.04
Free Phe (%)	0.18	0.33	0.40	0.31	0.17	0.15	0.41	0.19
Free His (%)	0.10	0.46	0.41	0.44	0.18	0.19	0.53	0.26
Free Lys (%)	0.07	0.13	0.13	0.12	0.07	0.06	0.14	0.07
Free Arg (%)	0.07	0.14	0.13	0.12	0.08	0.06	0.18	0.10

As higher concentrations of Na^+ are toxic to cell metabolism, plants generally compartmentalize Na^+ into vacuoles to avoid Na^+ toxicity to the cytoplasm. To circumvent osmotic stress caused by Na^+ accumulation in vacuoles, plants would accumulate osmotic solutes in the cytoplasm, such as K^+, proline, free sugar and amino acids. In this study, we tested the roles of 23 osmotic solutes in osmotic adjustment in salt stressed leaves, and we observed a conspicuous osmotic regulation trait: osmotic regulation roles by most amino acids were much greater in both neo-6*x* and nat-6*x* wheats than in 2*x* and 4*x* progenitors in response to salt stress.