

## Supplementary material

**Table S1** Results of a linear model explaining maximum terminal oocyte length among alkali bees. Lab-reared females in the sugar water only treatment are the base from which all comparisons are made. s.e. = standard error; overall model results:  $F_{4,89} = 82.42$ ,  $r^2 = 0.58$ ,  $p < 4.79 \times 10^{-16}$ .

	Coefficient	s.e.	t	p
Intercept	1.09	0.02	63.07	$2.00 \times 10^{-16}$
Sugar water + pollen	-0.00	0.02	-0.22	0.82
Sugar water + pollen + flowers	-0.02	0.02	-0.97	0.33
Newly emerged	-0.13	0.02	-6.38	$7.92 \times 10^{-9}$
Nesting, reproductive	0.76	0.10	7.51	$0.95 \times 10^{-3}$

**Table S2** Results of a linear model explaining Dufour's gland length among alkali bees. Lab-reared females in the sugar water only treatment are the base from which all comparisons are made. s.e. = standard error; overall model results:  $F_{4,101} = 45.80$ ,  $r^2 = 0.64$ ,  $p < 2.20 \times 10^{-16}$ .

	Coefficient	s.e.	t	p
Intercept	3.96	0.10	39.99	$2.00 \times 10^{-16}$
Sugar water + pollen	0.09	0.13	0.69	0.49
Sugar water + pollen + flowers	-0.10	0.14	-0.74	0.46
Newly emerged	-0.60	0.11	-5.12	$1.47 \times 10^{-6}$
Nesting, reproductive	0.78	0.13	6.06	$2.33 \times 10^{-8}$

**Table S3** Results of a linear model explaining maximum terminal oocyte length among alkali bees. Females in the sham control/solitary group are the base from which all comparisons are made. s.e. = standard error; overall model results:  $F_{5,41} = 6.68$ ,  $r^2 = 0.45$ ,  $p = 1.23 \times 10^{-4}$ .

	Coefficient	s.e.	t	p
Intercept	1.21	0.13	9.22	$1.49 \times 10^{-11}$
Environment: Social	0.16	0.19	1.42	0.16
Endocrine: Solvent control	0.05	0.18	1.99	0.05
Endocrine: 50 $\mu$ g JH	1.22	0.25	4.94	$1.37 \times 10^{-5}$
Environment: Social x Endocrine: Solvent control	-0.11	0.26	-0.41	0.68
Environment: Social x Endocrine: 50 $\mu$ g JH	-0.45	0.37	-1.21	0.23

**Table S4** Results of a linear model explaining Dufour's gland length among alkali bees. Females in the sham control/solitary group are the base from which all comparisons are made. s.e. = standard error; overall model results:  $F_{6,57} = 8.77$ ,  $r^2 = 0.48$ ,  $p = 8.97 \times 10^{-7}$ .

	Coefficient	s.e.	t	p
Intercept	1.58	1.25	1.28	0.21
Intertegular width	1.16	0.50	2.31	0.02
Environment: Social	0.12	0.23	0.53	0.60
Endocrine: Solvent control	0.55	0.23	2.42	0.02
Endocrine: 50 $\mu$ g JH	1.22	0.24	5.02	$5.45 \times 10^{-6}$
Environment: Social x Endocrine: Solvent control	-0.40	0.33	-1.19	0.24
Environment: Social x Endocrine: 50 $\mu$ g JH	-0.19	0.36	-0.52	0.60

**Table S5** Results of a linear model explaining maximum terminal oocyte length among alkali bees with a reduced dataset. Females in the sham control/solitary group are the base from which all comparisons are made. Social partners in which the reproductive female was smaller and/or had less developed reproductive anatomy than the newly emerged cage-mate were eliminated. s.e. = standard error; overall model results:  $F_{5,33} = 5.98$ ,  $r^2 = 0.48$ ,  $p = 0.484 \times 10^{-4}$ .

	Coefficient	s.e.	t	p
Intercept	1.21	0.14	8.78	$3.76 \times 10^{-10}$
Environment: Social	0.25	0.22	1.16	0.25
Endocrine: Solvent control	0.36	0.19	1.89	0.07
Endocrine: 50 $\mu$ g JH	1.22	0.26	4.70	$4.43 \times 10^{-5}$
Environment: Social x Endocrine: Solvent control	-0.08	0.33	-0.23	0.82
Environment: Social x Endocrine: 50 $\mu$ g JH	-0.43	0.40	-1.09	0.28

**Table S6** Results of a linear model explaining Dufour's gland length among alkali bees with a reduced dataset. Females in the sham control/solitary group are the base from which all comparisons are made. Social partners in which the reproductive female was smaller and/or had less developed reproductive anatomy than the newly emerged cage-mate were eliminated. s.e. = standard error; overall model results:  $F_{5,46} = 7.45$ ,  $r^2 = 0.45$ ,  $p = 3.45 \times 10^{-5}$ .

	Coefficient	s.e.	t	p
Intercept	4.46	0.17	25.93	$2.00 \times 10^{-16}$
Environment: Social	-0.07	0.26	-0.26	0.79
Endocrine: Solvent control	0.59	0.24	2.42	0.02
Endocrine: 50 $\mu$ g JH	1.31	0.26	5.15	$5.35 \times 10^{-6}$
Environment: Social x Endocrine: Solvent control	-0.38	0.43	-0.87	0.39
Environment: Social x Endocrine: 50 $\mu$ g JH	-0.54	0.42	-1.30	0.20