

Table S1

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Table S2

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Table S3. Individual recognition candidate genes from Berens et al. (2016) with corresponding mean log₂ fold changes during face training from this study (negative fold change (green): higher expression during facial learning, positive fold change (red): higher expression during pattern learning). Four genes (*IP3K*, *IP3R*, *Nckx30C*, and *Su(var)2-10*) are candidates for individual memory recall, and all showed down-regulation during memory recall (red) compared to no social interaction and initial memory formation. None of these genes were differentially expressed between face specialization vs. face learning in either paper wasp species (*P. fuscatus* or *P. metricus*), except *Nckx30C* (indicated by *) which was up-regulated in face learning compared to pattern learning for *P. metricus*. For most genes, there were multiple transcripts with Blast hits [E-value < 1e-4] to the gene sequences, so the log₂ fold changes were averaged across all transcripts. *mGluR* was not found in the *P. metricus* transcriptome.

Gene	<i>P. fuscatus</i>		<i>P. metricus</i>	
	Individual Memory Recall Candidate	Face Specialization Mean log ₂ Fold Change	Individual Memory Recall Candidate	Face Learning Mean log ₂ Fold Change
<i>Ace</i>		-0.226		0.332
<i>Bap60</i>		0.165		0.101
<i>Cha</i>		-0.335		0.348
<i>dor</i>		0.064		-0.064
<i>e</i>		0.016		0.312
<i>gogo</i>		-0.213		0.097
<i>Gug</i>		0.130		0.039
<i>IP3K</i>	Down regulated	-0.018	Down regulated	0.475
<i>IP3R</i>	Down regulated	-0.333	Down regulated	0.290
<i>mGluR</i>		-0.011		N/A
<i>N</i>		-0.104		0.212
<i>Nckx30C</i>	Down regulated	0.035		0.602*
<i>Nmdar1</i>		0.275		0.411
<i>PsGEF</i>		-0.194		0.259
<i>sca</i>		0.435		0.069
<i>Stau</i>		-0.378		0.145
<i>Su(var)2-10</i>	Down regulated	0.117		0.019
<i>Syt7</i>		-0.510		