

Table S1. Scent samples collected from captive and wild emperor tamarins. Age class was defined as juvenile (less than a year old), subadult (between 12 and 18 months old) or adult (over a year old). Reproductive status was defined as either reproductive (fully sexually mature individuals, having reproduced or not) or non-reproductive (subadult and juvenile offspring).

Study condition	Group	Sex	Age class	Reproductive status	Individual	Scent gland type	No. gland samples	No. body samples	Total samples per animal	Total per study condition
Wild	EBLA 1	Female	Adult	Reproductive	Grp1_F1	Anogenital	1	1	4	27
						Suprapubic	1			
						Sternal	1			
		Female	Adult	Reproductive	Grp1_F2	Suprapubic	1	1	3	
						Sternal	1			
						Sternal	1			
	Female	Adult	Reproductive	Grp1_F3	Suprapubic	1	1	3		
					Sternal	1				
					Sternal	1				
	EBLA 2	Female	Subadult	Non-reproductive	Grp1_F4	Suprapubic	1	1	3	
						Sternal	1			
		Male	Adult	Reproductive	Grp1_M1	Sternal	1	1	2	
Sternal						1				
Female		Adult	Reproductive	Grp2_F1	Anogenital	1	1	4		
					Suprapubic	1				
	Sternal				1					
Male	Adult	Reproductive	Grp2_M1	Anogenital	1	1	4			
				Suprapubic	1					
				Sternal	1					
Male	Adult	Reproductive	Grp2_M2	Anogenital	1	1	4			
				Suprapubic	1					
				Sternal	1					
Captive	TZ	Female	Adult	Reproductive	TZ_F1	Suprapubic	1	0	1	8
						Suprapubic	1			
		Female	Adult	Reproductive	TZ_F2	Suprapubic	1	1	2	
						Suprapubic	1			
		Female	Juvenile	Non-reproductive	TZ_F3	Suprapubic	1	1	2	
						Suprapubic	1			
Male	Adult	Reproductive	TZ_M1	Suprapubic	1	1	2			
				Suprapubic	1					
Male	Juvenile	Non-reproductive	TZ_M2	Suprapubic	1	0	1			
				Suprapubic	1					

Table S2. List of compounds retrieved from 27 wild tamarin samples (from the anogenital [Gag], suprapubic [Gsp] and sternal [Gst] scent glands, and body region [B] of 8 individuals) and 8 captive samples (from the suprapubic scent gland [Gsp] and body region [B] of 5 individuals) analysed in this study.

Study condition	Wild						Captive							
	EBLA 1						EBLA 2		TZ					
Group														
Sex	F	F	F	F	M	F	M	M	F	F	F	M	M	
Reproductive status	R	R	R	NR	R	R	R	R	R	R	NR	R	NR	
Individual	Grp1_ F1	Grp1_ F2	Grp1_ F3	Grp1_ F4	Grp1_ M1	Grp2_ F1	Grp2_ M1	Grp2_ M2	TZ_F1	TZ_F2	TZ_F3	TZ_M1	TZ_M2	
Butan-1-ol [#01]	B Gsp Gst	B Gsp Gst	B Gsp Gst	B Gsp Gst	B Gst	B Gsp Gag Gst	B Gsp Gag Gst	B Gsp Gag	-	-	-	-	-	
1-Methoxypropan-2-ol [#02]	-	-	-	-	-	-	-	-	Gsp	B	-	B Gsp	Gsp	
3-Methylbutan-1-ol [#03]	-	Gag Gst	Gsp	-	-	-	Gag	-	-	-	-	-	-	
Propane-1,2-diol [#04]	-	-	-	-	-	-	-	-	-	-	B Gsp	-	Gsp	
2-Methylpropanoic acid [#05]	B Gsp Gst	Gsp Gag Gst	Gsp Gst	B Gsp Gst	-	BGag	Gsp	Gsp	-	-	-	-	-	
Ethyl butanoate [#06]	-	-	-	Gst	-	-	Gag	-	-	-	-	-	-	
4-Hydroxy-4-methylpentan-2-one [#07]	B Gsp Gst	B Gsp Gag Gst	BGst	B Gsp	B Gst	B Gsp Gag Gst	B Gsp Gag Gst	B Gsp Gag Gst	-	B	B Gsp	B Gsp	Gsp	
3-Methylbutanoic acid [#08]	B Gsp	B Gsp Gag Gst	B Gsp	Gsp Gst	-	Gag Gsp	Gsp	Gag Gsp	-	-	-	-	-	
Heptan-2-one [#09]	-	Gag	-	-	-	-	-	-	-	-	-	-	-	
Butyl prop-2-enoate [#10]	BGst	B Gsp Gag	Gst	BGst	-	B Gsp Gag	B Gsp Gag Gst	B Gsp	-	-	-	-	-	
2-Butoxyethanol [#11]	B Gsp Gst	B Gsp Gag Gst	BGst	Gsp Gst	BGst	B Gsp Gag Gst	B Gsp Gag Gst	Gsp Gag Gst	-	-	-	B Gsp	Gsp	
Branched C9 alcohol [#12]	-	Gag	-	-	-	-	-	-	-	-	-	-	-	
Benzaldehyde [#13]	Gst	Gag	BGst	BGst	-	Gag	Gag	Gag	-	Gsp	-	B Gsp	-	
Ethyl 2-hydroxy-3-methylbutanoate [#14]	-	-	-	-	-	-	Gag	-	-	-	-	-	-	
1-Octen-3-ol [#15]	B Gsp	Gst	B	-	-	-	-	-	-	-	-	-	-	
Branched C10 alkane [#16]	B Gsp Gst	B Gsp Gag Gst	BGst	B Gsp Gst	BGst	B Gsp Gag Gst	B Gsp Gag Gst	B Gsp Gag Gst	-	-	-	-	-	
Phenol [#17]	Gsp Gst	-	-	-	-	-	-	-	-	B Gsp	B	B	-	
Branched C6 carboxylic acid [#18]	B Gsp Gst	B Gsp	B Gsp	B Gsp Gst	Gst	Gsp Gst	Gsp	Gag Gst	-	-	-	-	-	
Octanal [#19]	-	-	-	-	-	-	Gag Gst	-	-	-	-	-	-	
Branched C11 alkane 1 [#20]	Gsp	B Gsp Gst	-	Gst	B	B Gsp Gag Gst	B Gag Gst	B	-	-	-	-	-	
2-Ethylhexan-1-ol [#21]	B Gsp Gst	B Gsp Gag Gst	BGst	BGst	BGst	B Gsp Gag Gst	B Gsp Gag Gst	B Gsp Gag Gst	-	B	-	BGsp	Gsp	

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Study condition	Wild						Captive							
	EBLA 1						EBLA 2			TZ				
Group														
Sex	F	F	F	F	M	F	M	M	F	F	F	M	M	
Reproductive status	R	R	R	NR	R	R	R	R	R	R	NR	R	NR	
Individual	Grp1_ F1	Grp1_ F2	Grp1_ F3	Grp1_ F4	Grp1_ M1	Grp2_ F1	Grp2_ M1	Grp2_ M2	TZ_ F1	TZ_ F2	TZ_ F3	TZ_ M1	TZ_ M2	
3,3,5-Trimethylcyclohexanone [#22]	B Gsp Gst	B Gsp Gag Gst	B Gsp Gst	B Gsp Gst	B Gst	B Gsp Gag Gst	B Gsp Gag Gst	B Gsp Gag Gst	-	-	-	-	-	
Phenylacetaldehyde [#23]	-	-	-	-	-	-	Gag	-	-	-	-	-	-	
Acetophenone [#24]	B Gsp Gst	Gsp Gag Gst	Gst	B	B	B Gsp Gag Gst	BGag	B Gsp	-	-	-	-	-	
2,6-Dimethyl-7-octen-2-ol [#25]	-	-	-	-	-	-	-	-	-	B	-	B Gsp	Gsp	
Branched C11 alkane 2 [#26]	-	Gsp	-	-	-	Gsp Gag Gst	-	B	-	-	-	-	-	
p-Cresol [#27]	-	-	-	-	-	-	-	-	-	Gsp	Gsp	-	-	
Branched C11 alkane 3 [#28]	-	Gsp	-	-	B	Gsp Gag Gst	-	B Gsp	-	-	-	-	-	
Branched C11 alkane 4 [#29]	-	Gsp	-	-	-	Gsp Gag	-	B	-	-	-	-	-	
Branched C11 alkane 5 [#30]	Gsp	B Gsp	-	-	B	Gsp Gag Gst	-	B	-	-	-	-	-	
Branched C11 alkane 6 [#31]	-	Gsp	-	-	B	Gsp Gag	-	B	-	-	-	-	-	
Branched C11 alkane 7 [#32]	Gsp	B Gsp Gag Gst	-	-	B	B Gsp Gag Gst	B Gsp Gag Gst	B Gsp	-	-	-	-	-	
Branched C11 alkane 8 [#33]	Gsp	Gsp	-	-	B	Gag	-	B	-	-	-	-	-	
Nonanal [#34]	Gst	-	-	B Gst	-	B	B Gag Gst	B Gag	Gsp	B Gsp	-	B Gsp	-	
Unknown compound 1 [#35]	-	-	-	-	-	-	-	Gst	-	-	-	-	-	
Methyl-3-oxo-4-methylhexanoate or Methyl-3-oxoheptanoate [#36]	-	-	-	-	-	-	-	-	-	-	Gsp	-	-	
Branched C11 alkane 9 [#37]	-	Gsp	-	-	-	Gsp Gag Gst	-	-	-	-	-	-	-	
2-Phenylethanol [#38]	-	Gag	-	-	-	-	Gag	-	-	-	-	-	-	
Unknown (mixture containing a branched C12 alkane) [#39]	-	Gsp	-	-	-	Gsp Gag	-	-	-	-	-	-	-	
4,6-Nonadien-8-yn-3-ol [#40]	-	-	-	-	Gst	-	Gag	-	-	-	-	-	-	
2,5-Dipropyltetrahydrofuran [#41]	-	-	-	-	B	-	-	-	-	-	-	-	-	
Branched C7 carboxylic acid [#42]	Gsp Gst	Gsp	Gst	-	Gst	-	-	Gst	-	-	-	-	-	
3-Methylheptyl acetate [#43]	-	-	-	-	-	BGag	B	B	-	-	-	-	-	
Branched C8 carboxylic acid [#44]	B Gsp Gst	B Gsp	Gsp	-	Gst	Gsp	-	Gag	-	-	-	-	-	

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Study condition	Wild							Captive						
	EBLA 1							EBLA 2			TZ			
Group														
Sex	F	F	F	F	M	F	M	M	F	F	F	M	M	
Reproductive status	R	R	R	NR	R	R	R	R	R	R	NR	R	NR	
Individual	Grp1_ F1	Grp1_ F2	Grp1_ F3	Grp1_ F4	Grp1_ M1	Grp2_ F1	Grp2_ M1	Grp2_ M2	TZ_ F1	TZ_ F2	TZ_ F3	TZ_ M1	TZ_ M2	
Branched unsaturated C10 aldehyde [#45]	-	B	-	-	-	Gst	-	Gst	-	-	-	-	-	
Ethyl octanoate [#46]	Gsp	-	-	-	-	Gsp	Gag	Gag Gst	-	-	-	-	-	
4-Methoxybenzaldehyde [#47]	-	Gag	-	-	-	Gag	-	-	Gsp	B Gsp	-	B	-	
Ethyl non-3-enoate [#48]	Gsp	-	-	-	-	-	-	-	-	-	-	-	-	
Unknown compound 2 [#49]	-	-	-	-	-	-	-	Gst	-	-	-	-	-	
Tetrahydro-6-propyl-2H-pyran-2-one [#50]	B Gst	Gag Gst	B Gst	- Gst	- Gst	Gag Gst	- Gst	Gst Gst	Gsp	-	-	-	-	
Ethyl nonanoate or Branched C10 ethyl ester [#51]	-	-	-	-	-	Gsp	-	-	-	-	-	-	-	
Unknown compound 3 [#52]	-	-	-	-	-	Gsp	Gag	Gag Gst	-	-	-	-	-	
Butyl octanoate [#53]	-	-	-	-	-	-	-	-	-	B Gsp	B Gsp	B Gsp	Gsp	
Branched C10 carboxylic acid [#54]	B Gsp Gst	B Gsp Gag Gst	B Gsp Gst	B Gsp Gst	B Gst	B Gsp Gag Gst	B Gsp Gag Gst	B Gsp Gag Gst	Gsp	-	-	-	-	
n-Decanoic acid [#55]	-	-	-	-	-	-	-	Gst	-	-	-	-	-	
Ethyl dec-3-enoate [#56]	Gsp	Gsp	Gsp	-	-	-	Gag	Gag Gst	-	-	-	-	-	
Ethyl decanoate [#57]	Gsp	Gsp	-	-	-	Gsp	Gag	Gag Gst	-	-	-	-	-	
Tetradecane [#58]	-	-	-	-	-	-	-	-	-	B	-	Gsp	-	
Diethylene glycol dibutyl ether [#59]	-	-	-	-	-	-	-	-	-	B	-	Gsp	-	
Unknown compound 4 [#60]	Gsp	Gsp	-	-	Gst	-	-	Gst	-	-	-	-	-	
Octyl 2-methylpent-4-enoate [#61]	-	-	-	-	-	-	-	Gst	-	-	-	-	-	
Unknown compound 5 [#62]	-	-	-	-	-	-	-	Gst	-	-	-	-	-	
Cyclododecane [#63]	Gsp	Gag	-	-	-	-	Gag	-	-	-	-	-	-	
Dodecanoic acid [#64]	-	-	-	-	-	-	Gag	Gst	-	-	-	-	-	
Ethyl dodecanoate [#65]	Gst	-	-	-	-	Gsp	Gag Gst	Gag Gst	-	-	-	-	-	
3-Methoxy-5-pentylphenol [#66]	-	-	-	-	B	-	-	-	-	-	-	-	-	
Ethyl tetradecanoate [#67]	-	-	-	-	-	-	Gag	-	-	-	-	-	-	
Ethyl pentadecanoate [#68]	-	-	-	-	-	-	Gag	-	-	-	-	-	-	
Ethyl hexa- or hepta-decanoate [#69]	-	-	-	-	-	B	Gsp Gag	Gag Gst	-	-	-	-	-	

Table S3. Difference in $\log(\arcsin(x+1))$ -transformed relative peak abundance between wild and captive samples, for each identified compound found in common between the two study conditions (Wilcoxon rank sum test). P values are significant at $P \leq 0.05$.

Compound #	Candidate compound identity	Wilcoxon rank sum test
07	4-Hydroxy-4-methylpentan-2-one	W=78; P<0.01
11	2-Butoxyethanol	W=7; P=0.14
13	Benzaldehyde	W=4; P=0.80
17	Phenol	W=4; P=0.40
21	2-Ethylhexan-1-ol	W=6; P=0.02
34	Nonanal	W=17; P=0.11
49	Unknown compound 2 (only one occurrence in captive condition)	W=0; P=0.67
53	Butyl octanoate (only one occurrence in captive condition)	W=0; P=0.13