

Supplementary Materials: Comparison of Bitterness Intensity Between Prednisolone and Quinine in a Human Sensory Test Indicated Individual Differences in Bitter-Taste Perception

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Table S1. Primer sequences used for PCR and sequencing.

Gene	Purpose	Primer Sequence	Note
TAS2R19	PCR	CTGGGCTGTAACGAACCAT	Forward
		GCTAGAAGACCCACGATGCT	Reverse
	Sequencing	CTGGGCTGTAACGAACCAT	Detection for SNP rs10772420
	PCR	GGTGGCAACCAGGTCTTTAGATTA	Forward
		ACAGCTCTCCTCAACTTGGCATT	Reverse
TAS2R38	Sequencing	CCAACTAGAGAAGAGAAGTAGAATAGC	Detection for SNPs rs713598, rs1726866, and rs10246939
		ACAAGGCTCAACTGGCAGA	
TAS2R46	PCR	GAGTTGAATCCAGCTTTTAAC	Forward
		ATAGCTGAATGCAATAGCTTC	Reverse
	Sequencing	TTCACCTCTGACCCTGATATCTT	Detection for SNP rs2708380

Table S2. Perception of bitter aftertaste of each stimulus (gLMS score) as rated by subjects ($n = 50$).

	Quinine (0.1 mM)	Quinine (1 mM)	Prednisolone (0.2 mM)	Prednisolone- Saturated Solution	Prednisolone Powder
Mean	2.5	12.9	5.3	9.5	9.6
Min.	0.0	0.7	0.0	0.7	0.7
Max.	12.0	58.7	38.0	44.0	33.3
SD	2.6	13.7	7.4	10.4	8.6
CV	1.0	1.1	1.4	1.1	0.89

Table S3. Relationships between prednisolone-saturated solution bitterness perception and TAS2R19 genotype. p -values are calculated by Fisher's exact tests.

TAS2R19 Genotype	Strong	Medium or Weak	P-value
GG	23	3	0.0553
AG	12	8	
AA	2	1	
	37	12	

Table S4. Relationships between prednisolone-saturated solution bitterness perception and TAS2R38 phenotype. *p*-values are calculated by Fisher's exact tests.

TAS2R38 Phenotype	Strong	Medium or Weak	<i>p</i>-value
PAV/PAV	10	4	1.0000
PAV/AVI	18	6	
AVI/AVI	9	3	
	37	13	

Table S5. Relationships between prednisolone-saturated solution bitterness perception and TAS2R46 phenotype. *p*-values are calculated by Fisher's exact tests.

TAS2R46 Phenotype	Strong	Medium or Weak	<i>p</i>-value
W/W	20	5	0.5154
W/*	16	8	
/	1	0	
	37	13	

Table S6. Relationships between 1 mM quinine bitterness perception and TAS2R38 phenotype. *p*-values are calculated by Fisher's exact tests.

TAS2R38 Phenotype	Strong	Medium or Weak	<i>p</i>-value
PAV/PAV	8	6	0.0553
PAV/AVI	8	16	
AVI/AVI	9	3	
	25	25	

Table S7. Relationships between 1 mM quinine bitterness perception and TAS2R46 phenotype. *p*-values are calculated by Fisher's exact tests.

TAS2R46 Phenotype	Strong	Medium or Weak	<i>p</i>-value
W/W	11	14	0.3961
W/*	14	10	
/	0	1	
	25	25	

Table S8. Bitterness perception (gLMS scores) of the subjects sorted by male and female. *p*-values are calculated by Wilcoxon rank-sum tests.

	Quinine (0.1 mM)				Quinine (1 mM)				Prednisolone (0.2 mM)				Prednisolone-Satu- rated Solution				Prednisolone Pow- der		
	Mean	SD	<i>p</i> -value		Mean	SD	<i>p</i> -value		Mean	SD	<i>p</i> -value		Mean	SD	<i>p</i> -value		Mean	SD	<i>p</i> -value
Male	13.8	11.6	0.1901		38.1	13.7	0.5092		24.6	19.6	0.6978		46.4	19.7	0.6836		32.2	22.4	0.5736
Female	18.0	12.8			42.1	21.6			24.5	13.8			47.2	20.0			36.1	23.9	