

Dataset S1. Phylogeny and trait data for comparative analyses. (A) The phylogeny that was used for the ancestral state estimates of elevation and $\beta 13$ - $\beta 83$ genotype as depicted in Figure 4, in Newick format. Node labels are posterior probability estimates for each clade. Branch lengths are proportional to relative time. (B) The data used for comparative analyses of 63 hummingbird species, including the species' maximum elevation, minimum elevation, and the amino acids at positions $\beta 13$ and $\beta 83$.

A.

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(apus_apus:42.5,((florisuga_mellivora:21.58251284,(eutoxeres_condamini:19.59179945,((threnetes_leuc
urus:7.593799152,glaucis_hirsutus:7.593799152)1.00:5.458735986,((phaethornis_syrmatophorus:7.0404
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615839,(phaethornis_hispidus:7.526412547,phaethornis_ruber:7.526412547)0.94:0.2465531508)1.00:5.
27956944)1.00:6.539264308)1.00:1.990713397)1.00:0.8030054618,(((doryfera_ludovicae:12.78813896,(
schistes_geoffroyi:11.77392866,colibri_coruscans:11.77392866)1.00:1.014210299)1.00:5.76138279,anth
racothorax_nigricollis:18.54952174)1.00:1.5234818,(((haplophaedia_aureliae:11.4814989,(erioncnemis_a
linae:7.215116008,erioncnemis_luciani:7.215116008)1.00:4.266382893)1.00:2.348433693,((lafresnaya_la
fresnaya:11.83844458,aglaeactis_castelnaudii:11.83844458)0.88:1.356892144,(((ensifera_ensifera:10.2
1230199,pterophanes_cyanopterus:10.21230199)1.00:1.625966458,(boissonneaua_matthewsii:10.1139
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83)1.00:3.141457693)0.73:0.3983105689)1.00:0.6345958663)1.00:1.671283968,(((lophornis_chalybeus:
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osura_langsdorffi:4.997402834)1.00:2.813643099)1.00:6.403304237,(phlogophilus_harterti:13.2108949
2,((heliangelus_amethysticollis:3.530452247,(heliangelus_viola:3.261148903,heliangelus_micraster:3.26
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ostigma_stanleyi:4.811536371,(chalcostigma_ruficeps:4.571696761,chalcostigma_olivaceum:4.5716967
61)0.46:0.23983961)0.86:0.3193060232)1.00:0.9657565811,(metallura_phoebe:4.476686487,metallura_
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gas:14.38065922,(eugenes_fulgens:11.524263,((calliphlox_amethystina:3.341953595,thaumastura_cora
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6548,(chlorostilbon_aureoventris:12.43311726,(thalurania_furcata:11.33366768,(taphrospilus_hypostictu
s:8.855630206,((amazilia_amazilia:4.105048477,chrysuronia_oenone:4.105048477)1.00:1.242588118,(a
mazilia_lactea:2.914837093,(amazilia_chionogaster:1.796389023,amazilia_viridicauda:1.796389023)1.0
0:1.118448069)1.00:2.432799503)1.00:3.507993611)1.00:2.478037477)1.00:1.099449577)1.00:1.42753
2291)1.00:0.520009674)1.00:1.973971915)1.00:3.718372406)1.00:2.312514759)1.00:20.1144817);
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B.

Species	Maximum elevation (m)	Minimum elevation (m)	$\beta 13$	$\beta 83$
<i>Adelomyia melanogenys</i>	2900	1000	Gly	Gly
<i>Aglaeactis castelnaudii</i>	4200	3100	Gly	Ser
<i>Aglaiocercus kingi</i>	2600	1300	Gly	Gly
<i>Amazilia amazilia</i>	1000	0	Gly	Gly
<i>Amazilia chionogaster</i>	2800	0	Gly	Ser
<i>Amazilia lactea</i>	900	0	Gly	Gly
<i>Amazilia viridicauda</i>	3100	1000	Gly	Ser

<i>Anthracothonax nigricollis</i>	1000	0	Gly	Gly
<i>Apus apus</i>	3300	0	Gly	Ser
<i>Boissonneaua matthewsii</i>	2700	1550	Gly	Ser
<i>Calliphlox amethystina</i>	1050	0	Gly	Gly
<i>Chalcostigma herrani</i>	3400	2700	Gly	Ser
<i>Chalcostigma olivaceum</i>	4500	3150	Ser	Ser
<i>Chalcostigma ruficeps</i>	3300	2250	Gly	Ser
<i>Chalcostigma stanleyi</i>	4400	3350	Ser	Ser
<i>Chlorostilbon aureoventris</i>	2500	0	Gly	Gly
<i>Chrysuronia oenone</i>	1650	0	Gly	Gly
<i>Clytolaema rubricauda</i>	2000	750	Gly	Gly
<i>Coeligena coeligena</i>	2200	1000	Gly	Gly
<i>Coeligena iris</i>	3500	1500	Gly	Ser
<i>Coeligena lutetiae</i>	3750	3000	Gly	Ser
<i>Coeligena torquata</i>	2800	1700	Gly	Gly
<i>Coeligena violifer</i>	3900	2500	Gly	Ser
<i>Colibri coruscans</i>	3600	1300	Gly	Ser
<i>Discosura langsdorffi</i>	800	0	Gly	Gly
<i>Discosura longicauda</i>	700	0	Gly	Gly
<i>Doryfera ludovicae</i>	2800	1200	Gly	Asn
<i>Ensifera ensifera</i>	3600	2200	Gly	Ser
<i>Eriocnemis alinae</i>	2800	2000	Gly	Ser
<i>Eriocnemis luciani</i>	3750	2600	Gly	Ser
<i>Eugenes fulgens</i>	3300	1300	Gly	Ser
<i>Eutoxeres condamini</i>	2750	0	Gly	Gly
<i>Florisuga mellivora</i>	900	0	Gly	Gly
<i>Glaucis hirsutus</i>	1100	0	Gly	Gly
<i>Haplophaedia aureliae</i>	2500	1400	Gly	Gly
<i>Heliangelus amethysticollis</i>	3300	1800	Gly	Gly
<i>Heliangelus micraster</i>	2900	2400	Gly	Gly
<i>Heliangelus viola</i>	3050	2150	Gly	Gly
<i>Heliodoxa imperatrix</i>	1800	900	Gly	Gly
<i>Heliodoxa leadbeateri</i>	2300	1050	Gly	Gly
<i>Heliodoxa rubinoides</i>	2650	1700	Gly	Gly
<i>Lafresnaya lafresnayi</i>	3350	2300	Gly	Ser
<i>Lophornis chalybeus</i>	600	0	Gly	Gly
<i>Lophornis delattrei</i>	2000	0	Gly	Gly
<i>Metallura phoebe</i>	4400	2500	Gly	Ser
<i>Metallura tyrianthina</i>	3500	2400	Gly	Ser
<i>Ocreatus underwoodii</i>	2500	1050	Gly	Ser
<i>Oreotrochilus estella</i>	4600	3400	Ser	Ser
<i>Oreotrochilus melanogaster</i>	4800	3500	Ser	Ser
<i>Patagona gigas</i>	4300	0	Ser	Ser

<i>Phaethornis guy</i>	2000	800	Gly	Gly
<i>Phaethornis hispidus</i>	500	0	Gly	Gly
<i>Phaethornis malaris</i>	1300	0	Gly	Gly
<i>Phaethornis ruber</i>	900	0	Gly	Gly
<i>Phaethornis syrmatophorus</i>	2400	1100	Gly	Gly
<i>Phlogophilus harterti</i>	1200	750	Gly	Ala
<i>Polyonymus caroli</i>	2800	1500	Gly	Ser
<i>Pterophanes cyanopterus</i>	3700	2600	Gly	Ser
<i>Schistes geoffroyi</i>	2250	1100	Gly	Gly
<i>Selasphorus platycercus</i>	3750	1900	Gly	Ser
<i>Taphrospilus hypostictus</i>	1350	750	Gly	Gly
<i>Thalurania furcata</i>	1700	0	Gly	Ser
<i>Thaumastura cora</i>	3000	0	Gly	Ser
<i>Threnetes leucurus</i>	1050	0	Gly	Gly
