

## Supplementary Information

Table 1. Whole-rock chemistry in samples from plutonic rocks of the Santander Massif, Upper Magdalena Valley, and northern block of the Ibagué Batholith.

Sample	Geological Unit	SiO <sub>2</sub>	TiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub>	MgO	CaO	Na <sub>2</sub> O	K <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	MnO	LOI	Li	Be	Sc	V	Cr	Co	Ni	Cu	Zn	Ga	As	Rb	Sr	Cs	Ba	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Tl	Pb	Bi	Th	U	Zr	Nb	Y	Ta	Hf
<b>Santander Massif</b>																																																			
900857	Santa Bárbara Monzogranite	72.32	0.35	14.11	2.25	0.82	1.03	3.48	4.47	0.095	0.089	1.18	9.71	3.89	6.79	29.40	15.22	14.98	16.66	5.89	39.31	18.44	1.73	184.36	199.66	2.05	860.62	68.02	118.60	14.03	48.71	8.09	1.04	5.60	0.98	5.28	0.97	3.04	0.39	2.48	0.32	1.14	14.13	0.10	23.54	5.25	203.70	15.00			
900861	La Corcova Monzogranite	73.2	0.3	13.9	2.05	0.39	1.54	2.52	5.27	0.1	0.05	0.58	30.91	2.49	4.65	19.80	4.85	12.66	4.29	5.18	35.14	18.05	2.56	210.37	169.63	2.73	1626.98	83.39	158.79	17.54	64.70	8.85	1.22	6.37	0.94	4.26	0.72	2.15	0.23	1.36	0.18	1.37	17.66	0.07	32.87	2.45	205.50	10.50			
900862	La Corcova Monzogranite	69.56	0.62	16.59	1.66	0.24	1.74	3.17	5.29	0.05	0.4	31.93	2.33	4.66	13.90	1.98	16.90	3.27	5.43	26.11	17.94	1.92	230.95	130.31	2.49	1141.09	62.05	120.34	14.38	44.90	8.47	0.91	5.72	0.85	3.58	0.54	1.48	0.15	0.91	0.12	1.50	21.11	0.07	31.40	1.99	185.20	12.60				
900863	La Corcova Monzogranite	70.89	0.49	15.97	1.51	0.14	1.45	3.1	4.76	0.07	0.32	51.21	3.00	5.51	12.93	1.77	13.21	2.69	4.14	26.14	19.00	1.74	268.48	106.51	4.27	776.38	47.83	93.12	10.47	30.62	6.41	0.75	4.57	0.74	3.27	0.51	1.42	0.16	1.04	0.15	1.72	21.19	0.08	28.21	2.73	126.70	14.90				
900864	Pescadero Granite	77.24	0.11	12.8	0.47	0.04	0.05	2.48	5.35	0.01	0.42	0.9	14.18	2.10	4.82	1.59	0.95	9.89	1.47	3.71	24.68	16.49	1.61	174.06	31.62	3.12	472.12	22.26	43.30	6.38	20.33	4.95	0.56	3.20	0.60	2.95	0.54	1.68	0.24	1.72	0.25	1.39	5.59	0.10	13.13	2.98	66.80	20.90			
900867	Pescadero Granite	74.44	0.2	13.05	1.22	0.33	0.88	3.2	5.01	0.05	0.48	0.66	18.05	1.91	2.90	10.60	1.82	11.74	2.47	4.11	23.30	15.37	1.51	177.32	142.12	2.20	974.07	42.03	67.31	6.62	18.06	2.63	0.70	2.22	0.34	1.61	0.31	1.03	0.14	0.98	0.15	0.96	13.99	<0.05	20.02	2.70	124.70	10.20			
900869	Mogotes Batholith	73.36	0.29	13.99	1.63	0.46	1.48	3.47	4.42	0.076	0.66	0.66	6.60	3.00	4.90	16.00	1.20	11.00	2.90	4.70	26.00	17.00	1.60	160.00	181.00	1.60	1082.00	40.00	71.00	7.40	23.00	3.90	0.91	3.10	0.56	3.00	0.62	2.10	0.30	2.10	0.32	0.95	19.00	1.50	19.00	4.00	146.00	17.00			
900870	Santa Bárbara Monzogranite	72.62	0.35	14.87	1.36	0.4	0.53	2.79	5.24	0	0.045	0.85	10.43	2.11	3.11	16.00	21.35	14.89	5.64	6.04	22.97	15.30	1.81	200.42	162.32	1.30	931.13	39.41	72.24	7.96	24.80	4.36	0.82	3.26	0.53	2.66	0.49	1.57	0.20	1.36	0.19	1.07	16.28	0.05	21.79	2.99	120.60	9.50			
900871	Pescadero Granite	76.74	0.14	13.76	0.7	0.02	0.15	3.05	4.96	0	0.01	0.47	7.90	2.45	6.21	1.50	<0.5	11.75	1.20	3.41	10.88	16.58	2.13	206.12	28.22	2.38	305.76	26.67	60.42	6.95	22.45	4.71	0.38	3.13	0.54	2.79	0.51	1.73	0.24	1.74	0.26	1.35	6.00	<0.05	16.44	2.36	82.10	24.40			
900872	Pescadero Granite	72.53	0.46	16.18	1.51	0.08	0.28	3.83	4.54	0	0.05	0.54	13.11	2.25	7.42	13.64	10.99	20.79	9.48	5.70	36.08	18.01	2.24	188.11	76.99	1.90	716.50	52.02	102.88	12.70	37.45	7.88	0.87	5.64	1.03	5.36	1.01	3.18	0.42	2.72	0.40	1.24	5.62	0.15	19.12	3.21	139.00	23.40			
900873	Pescadero Granite	68.86	0.8	16.73	2.31	0.41	1.47	3.77	3.83	0	0.12	1.7	6.89	3.41	14.04	10.60	9.49	20.52	6.52	6.58	22.64	21.81	2.70	181.46	81.67	1.86	1127.95	47.39	102.77	12.15	39.48	9.11	1.26	6.81	1.32	7.29	1.33	3.78	0.47	2.97	0.39	1.19	11.16	0.14	19.19	3.83	181.00	22.10			
900874	Mogotes Batholith	71.62	0.65	15.59	1.71	0.06	0.35	3.56	4.89	0.02	0.58	29.00	2.70	6.00	24.00	1.40	15.00	4.70	5.80	56.00	19.00	1.70	147.00	268.00	2.00	1178.00	47.00	81.00	9.00	28.00	4.80	1.10	3.80	0.63	3.40	0.63	2.00	0.27	1.80	0.27	0.92	13.00	0.13	15.00	2.40	219.00	15.00				
900876	Alto de Los Cacaos Rhyolite	73.65	0.15	15.98	1.08	0.07	0.20	2.28	4.63	0.02	0.98	15.01	3.23	5.89	3.55	<0.5	14.00	1.91	5.01	16.74	13.69	2.36	187.26	64.74	1.59	625.42	32.37	59.60	7.80	24.88	4.61	0.67	3.45	0.63	3.62	0.73	2.55	0.39	2.81	0.43	1.29	13.86	0.34	22.79	4.52	81.80	18.80				
900881	Santa Bárbara Monzogranite	77.25	0.09	12.77	0.61	0.03	0.25	3.03	5.28	0.009	0.033	0.72	11.02	6.27	4.94	6.18	2.92	7.00	0.62	3.00	11.64	16.81	1.24	326.71	75.85	6.44	63.96	15.37	28.22	3.35	10.17	1.82	0.19	1.35	0.24	1.27	0.27	1.01	0.18	1.45	0.27	2.28	31.84	0.13	35.44	9.24	55.40	14.30			
900882	Santa Bárbara Monzogranite	71.97	0.64	13.74	2.58	0.03	2.15	2.56	3.85	0	0.108	0.92	39.57	3.98	7.53	32.30	8.31	17.41	7.22	4.84	47.59	17.55	2.23	185.44	270.25	2.65	870.94	40.13	79.30	9.48	31.38	6.14	1.01	4.08	0.77	3.86	0.78	2.42	0.34	2.22	0.34	1.23	22.65	0.09	20.74	3.91	147.40	12.10			
900887	Mogotes Batholith	74.56	0.01	14.63	1.2	0.04	0.71	3.36	4.48	0.04	0.15	8.00	3.20	4.20	4.30	1.00	12.00	0.53	5.00	10.00	14.00	1.70	201.00	36.00	1.50	358.00	19.00	43.00	5.40	18.00	4.20	0.49	2.90	0.67	3.80	0.78	2.50	0.39	2.80	0.43	1.20	23.00	0.09	20.00	3.80	57.00	20.00				
900890	San San Joaquín Rhyolite	68.54	0.63	16.54	2.46	0.2	1.58	4.41	4.25	0.1	0.38	20.55	5.67	10.73	15.30	6.56	20.61	3.10	4.93	36.38	18.12	2.96	191.69	172.24	1.74	1024.57	48.77	97.84	12.35	42.06	7.95	1.26	5.67	1.11	6.02	1.19	3.75	0.53	3.64	0.52	1.11	25.46	0.09	22.42	4.63	169.40	18.20				
900891	San San Joaquín Rhyolite	69.56	0.62	17.23	2.13	0.18	1.03	2.39	4.97	0.07	1.14	29.09	3.13	9.65	12.80	3.25	13.44	3.95	4.90	31.75	16.67	3.00	185.54	123.66	2.15	916.05	67.29	121.87	15.49	52.00	9.77	1.55	6.88	1.27	6.13	1.22	3.78	0.47	2.86	0.44	1.15	21.27	0.49	19.44	3.47	178.30	15.30				
900892	San San Joaquín Rhyolite	65.4	0.28	18.16	3.1	0.55	1.79	4.16	4.37	0.13	0.78	44.21	3.94	12.39	26.60	5.57	16.76	3.96	8.68	59.21	18.31	2.49	166.60	213.42	2.47	1408.66	58.50	114.67	13.99	45.46	8.69	1.59	6.30	1.16	5.63	1.09	3.34	0.45	3.03	0.47	1.04	19.45	0.10	18.67	4.29	226.10	15.90				
900896	Santa Bárbara Monzogranite	73.83	0.25	13.72	1.68	0.56	1.3	3.22	4.43	0.074	0.069	0.8	38.44	4.46	6.51	19.20	11.33	15.62	6.01	5.02	36.49	18.87	2.45	191.73	232.29	3.36	866.82	49.81	95.49	10.84	32.13	5.89	0.98	4.37	0.79	4.09	0.83	2.62	0.36	2.45	0.35	1.19	21.50	0.10	25.09	7.30	148.00	16.10			
900897	Pescadero Granite	72.35	0.08	17.15	0.84	0.05	0.2	3.46	5	0	0.03	0.84	23.78	3.92	7.96	2.89	1.50	6.09	0.33	4.81	24.35	17.26	1.64	197.33	23.77	1.83	336.63	19.17	34.57	5.88	20.63	4.91	0.53	3.00	0.64	3.48	0.66	2.05	0.30	2.07	0.32	1.27	24.10	0.07	15.10	3.76	77.50	28.00			
900898	Pescadero Granite	76.77	0.16	12.55	0.76	0.06	0.08	3.19	4.88	0.02	0.71	0.68	11.80	3.16	7.64	6.19	1.82	18.08	0.26	3.87	18.78	16.05	2.29	198.42	32.11	1.94	432.73	31.32	92.80	8.84	28.91	6.61	0.63	4.44	0.84	4.11	0.79	2.35	0.34	2.36	0.37	1.25	10.51	<0.05	20.10	2.89	121.50	27.90			
900899	Pescadero Granite	68.6	0.21	16.9	2.39	0.4	1.45	4.37	4.32	0	0.1	1.26	27.81	2.98	5.57	16.40	2.40	15.65	2.82	4.26	34.50	16.92	1.78	173.84	199.48	2.06	1277.18	42.67	73.00	7.78	25.49	4.00																			

**Table 1.** Whole-rock chemistry in samples from plutonic rocks of the Santander Massif, Upper Magdalena Valley, and northern block of the Ibagué Batholith (*continued*).

Sample	Geological Unit	SiO <sub>2</sub>	TiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub>	MgO	CaO	Na <sub>2</sub> O	K <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	MnO	LOI	Li	Be	Sc	V	Cr	Co	Ni	Cu	Zn	Ga	As	Rb	Sr	Cs	Ba	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Tl	Pb	Bi	Th	U	Zr	Nb	Y	Ta	Hf
900945	El Uvo Rhyolite	75.80	0.15	13.06	1.01	0.21	0.65	2.62	5.45	0.026	0.95	14.42	4.25	5.54	11.30	6.49	14.67	4.65	9.34	45.91	17.54	1.22	268.34	111.33	2.41	330.61	20.55	36.71	4.59	15.42	2.98	0.50	2.23	0.54	2.75	0.60	2.02	0.32	2.37	0.41	1.98	23.35	0.14	30.89	9.01	73.60	13.00				
900946	El Uvo Rhyolite	76.81	0.12	12.68	0.85	0.19	0.69	3.00	4.91	<0.024	0.59	11.19	4.47	7.27	12.95	10.53	20.18	4.18	6.74	21.20	16.26	1.35	323.38	69.08	5.39	160.16	17.69	33.88	4.24	15.08	2.99	0.33	2.24	0.52	2.94	0.66	2.21	0.36	2.71	0.45	2.04	26.42	0.24	32.06	8.28	62.10	18.00				
900949	Rionegro Monzogranite	62.83	0.82	17.65	4.74	1.48	4.16	4.09	2.75	0.244	0.114	0.74	8.30	2.20	13.00	56.00	4.20	20.00	9.30	13.00	96.00	27.00	4.60	104.00	493.00	1.30	2693.00	127.00	238.00	31.00	120.00	18.00	3.90	13.00	2.80	13.00	2.60	7.80	1.10	7.00	0.93	0.58	11.00	<0.05	13.00	0.94	491.00	20.00			
900950	Rionegro Monzogranite	66.73	0.56	16.49	3.73	1.13	3.44	3.93	3.03	0.176	0.09	0.37	22.00	2.00	9.50	42.00	7.80	17.00	6.00	10.00	65.00	20.00	3.40	93.00	383.00	1.70	2523.00	97.00	173.00	20.00	65.00	9.30	2.60	7.50	1.20	5.30	1.00	3.30	0.40	2.60	0.40	0.50	10.00	<0.05	13.00	1.20	328.00	15.00			
900952	Rionegro Monzogranite	64.59	0.78	17.05	4.15	1.19	3.5	4.24	3.29	0.211	0.113	0.62	18.00	2.60	17.00	38.00	8.00	15.00	6.00	10.00	84.00	22.00	3.90	113.00	404.00	1.10	1979.00	98.00	199.00	24.00	93.00	14.00	3.10	11.00	2.10	9.70	1.90	5.80	0.75	5.00	0.73	0.61	12.00	<0.05	15.00	2.10	452.00	20.00			
900954	Rionegro Monzogranite	60.99	0.91	18.51	5.07	1.71	4.28	3.71	3.38	0.325	0.1	0.67	45.00	3.20	20.00	67.00	12.00	19.00	12.00	23.00	93.00	26.00	3.80	168.00	564.00	4.00	2329.00	121.00	180.00	21.00	70.00	9.60	3.00	7.50	1.30	5.20	1.00	3.60	0.49	4.00	0.67	0.87	13.00	0.16	7.20	2.20	488.00	16.00			
900962	Mogotes Batholith	70.14	0.39	15.27	2.23	0.74	2.17	3.57	4.06	0.13	0.55	1.03	17.00	4.20	7.50	26.00	6.30	19.00	5.47	4.80	36.00	19.00	2.10	177.00	420.00	1.30	1331.00	59.00	98.00	11.00	36.00	6.50	1.60	4.70	0.92	4.10	0.79	2.50	0.33	2.20	0.32	0.85	19.00	<0.05	19.00	2.80	186.00	18.00			
900965	Mogotes Batholith	73.75	0.28	13.79	1.68	0.3	1.34	2.84	5.15	0.057	0.44	0.67	23.00	2.90	7.10	16.00	6.20	20.00	3.96	3.20	30.00	20.00	2.70	290.00	121.00	2.80	1119.00	78.00	128.00	14.00	44.00	9.30	1.40	7.10	1.40	6.40	1.20	3.70	0.45	2.80	0.41	1.40	22.00	<0.05	34.00	2.40	183.00	13.00			
900966	Mogotes Batholith	72.51	0.34	14.21	2.01	0.88	0.67	3.13	4.96	0.092	0.49	1.06	52.00	4.10	12.00	23.00	3.60	19.00	3.61	3.60	45.00	18.00	2.20	254.00	173.00	3.70	1058.00	58.00	96.00	12.00	39.00	7.00	1.40	5.30	1.10	4.80	0.99	3.10	0.41	2.90	0.43	1.10	17.00	0.04	22.00	5.10	166.00	18.00			
900971	Rionegro Monzogranite	72.67	0.32	13.49	1.93	0.54	1.29	2.93	5.15	0.112	0.059	1.41	10.00	2.70	6.90	20.00	4.30	16.00	17.00	7.80	43.00	16.00	1.60	206.00	173.00	2.50	848.00	29.00	59.00	6.60	21.00	4.20	1.10	3.90	0.62	3.30	0.72	2.20	0.33	2.20	0.33	1.30	39.00	0.23	16.00	4.60	145.00	17.00	21		
900973	Rionegro Monzogranite	71.62	0.34	13.81	2.08	0.71	2.55	3.83	3.36	0.092	0.07	1.42	4.30	1.90	5.40	25.00	3.80	13.00	13.00	30.00	40.00	15.00	1.60	98.00	227.00	0.34	1074.00	35.00	65.00	7.30	24.00	4.30	1.20	4.20	0.60	3.20	0.67	2.10	0.30	2.10	0.31	0.53	9.50	<0.05	10.00	1.40	147.00	14.00	19		
900974	Rionegro Monzogranite	76.09	0.14	13.2	0.9	0.17	0.81	3.31	4.78	0.037	0.049	0.47	6.90	3.10	5.10	10.00	1.40	13.00	1.70	4.60	21.00	15.00	1.40	220.00	86.00	1.60	518.00	21.00	46.00	5.60	19.00	4.20	0.67	3.80	0.57	3.10	0.60	1.80	0.27	1.90	0.29	1.20	20.00	0.50	15.00	3.80	70.00	20.00	18		
900985	Rionegro Monzogranite	68.93	0.47	16.01	2.88	1.6	1.28	7.16	0.26	0.159	0.081	1.16	17.00	1.10	6.40	22.00	3.50	16.00	6.60	6.80	53.00	15.00	1.10	10.00	188.00	0.09	55.00	25.00	51.00	5.90	19.00	3.90	1.00	4.50	0.73	4.20	0.89	2.60	0.34	2.10	0.29	0.05	4.10	<0.05	9.10	1.40	196.00	13.00			
900990	Rionegro Monzogranite	71.65	0.32	14.34	2.44	0.68	2.58	3.42	3.28	0.101	0.087	0.91	12.00	2.00	6.00	25.00	2.50	20.00	3.00	5.20	56.00	16.00	1.20	97.00	269.00	0.42	1150.00	32.00	61.00	6.70	21.00	4.10	1.30	4.10	0.58	3.00	0.63	1.90	0.27	1.80	0.27	0.52	9.90	<0.05	8.40	2.30	161.00	13.00			
900997	Rionegro Monzogranite	51.52	2.06	16.8	9.57	4.59	7.48	3.94	1.43	0.441	0.146	1.81	12.00	2.10	29.00	201.00	64.00	33.00	42.00	38.00	100.00	22.00	2.10	24.00	521.00	0.32	420.00	24.00	55.00	7.40	28.00	6.50	2.00	6.10	1.00	5.80	1.20	3.40	0.47	3.10	0.45	0.04	6.40	<0.05	2.00	0.50	276.00	18.00			
900999	Rionegro Monzogranite	58.77	1.36	16.28	5.76	3.46	6.43	3.97	2.66	0.255	0.093	0.87	5.10	2.30	23.00	118.00	56.00	26.00	32.00	29.00	58.00	17.00	1.40	29.00	455.00	0.26	335.00	13.00	25.00	3.50	14.00	3.20	1.20	3.10	0.54	3.10	0.63	1.90	0.26	1.70	0.26	0.03	6.30	<0.05	3.70	1.30	147.00	14.00			
901002	San Martín Tonalite	74.48	0.16	13.61	2.2	0.33	1.17	4.04	3.26	0.057	0.04	0.54	4.89	1.58	3.40	12.27	4.05	20.24	2.26	80.24	26.53	15.66	0.93	49.71	114.41	0.11	916.73	14.73	27.97	3.60	13.24	2.55	0.84	2.41	0.38	2.09	0.42	1.31	0.19	1.32	0.19	0.22	7.91	<0.05	2.06	0.32	137.70	5.50			
901003	San Martín Tonalite	69.23	0.3	16.99	2.25	0.46	0.41	9.1	0.13	0.074	0.13	0.84	7.86	1.70	5.20	10.20	4.32	9.04	1.43	7.04	203.20	18.17	1.45	1.60	116.75	<0.05	132.92	17.63	39.79	5.51	19.41	4.19	0.96	4.05	0.70	4.05	0.84	2.50	0.34	2.20	0.31	<0.01	13.13	<0.05	2.11	0.53	199.40	5.30			
901004	San Martín Tonalite	75.33	0.14	13.58	1.58	0.33	0.22	4.43	3.37	0.047	0.04	0.82	7.99	1.17	2.13	12.15	5.24	19.56	9.91	4.40	30.64	12.59	0.89	53.96	116.32	0.13	1081.52	14.62	25.83	3.22	11.16	2.07	0.78	1.75	0.26	1.33	0.29	1.00	0.16	1.19	0.20	0.22	3.19	<0.05	1.93	0.54	109.20	4.50			
901032	San Martín Tonalite	65.24	0.7	16.94	4.77	0.83	2.05	6.68	1.69	0.118	0.15	0.53	3.49	1.30	10.97	23.18	4.36	10.50	1.79	6.90	81.75	20.62	1.10	28.83	229.94	0.16	1186.40	22.73	51.03	6.21	25.10	5.79	3.68	5.92	0.91	5.44	1.11	3.29	0.47	3.10	0.48	0.11	6.10	<0.05	1.70	0.39	777.00	9.40			
901033	San Martín Tonalite	74.96	0.18	13.41	1.74	0.35	0.67	4.25	3.77	0.04	0.03	0.49	1.62	1.60	2.15	9.45	3.11	19.88	1.20	5.49	25.01	15.73	1.01	74.66	88.94	0.12	1130.75	24.06	49.69	5.38	18.03	3.55	0.81	3.49	0.46	2.45	0.48	1.41	0.21	1.43	0.21	0.27	8.90	<0.05	3.27	0.47	152.10	6.30			
10VDL05	La Corcová Monzogranite	68.37	0.6	15.35	3.66	1.03	2.5	3.01	4.22	0.2	0.15	0.91	4.21	10.99	46.00	8.00	6.38	6.43	10.83	65.00	19.89	2.95	144.63	255.79	2.10	1058.47	78.63	138.25	14.65	54.01	9.16	1.76	7.02	1.14	6.21	1.27	3.49	0.49	3.30	0.52	15.86	0.08	22.66	3.12	340.49	16.44	34.6	1.17	7.81		
10VDL22*	Pescadero Granite	71.3	0.38	14.66	2.26	0.72	1.94	3.62	4.03	0.12	0.13	0.84	4.37	6.52	24.00	7.00	3.06	6.41	4.90	46.00	16.37	2.81	131.22	261.65	1.53	962.73	56.70	94.82	9.36	32.13	5.26	0.95	3.73	0.55	3.55	0.73	2.12	0.32	2.54	0.38	-	12.01	0.07	19.66	2.65	229.55	16.70	22.1	1.17	5.71	
10VDL28*	Mogotes Batholith	64.23	0.61	15.36	4.04	1.91	3.26	3	4.05	0.2	0.08	3.29	2.39	10.11	80.00	42.00	9.98	28.12	11.62	63.00	19.16	1.95	139.49	429.16	0.84	935.95	60.50	104.75	10.79	39.27	6.01	1.37	4.31	0.61	3.49	0.72	1.91	0.27	1.89	0.30	12.78	0.05	18.31	2.93	216.33	11.52	18.8	0.96	5.55		
10VDL31*	Mogotes Batholith	68.26	0.5	15.01	3.31	1.48	2.74	3.11	3.71	0.17	0.07	1.38	4.62	9.60	56.00	36.00	6.77	25.31	7.32	55.00	19.16	2.93	113.94	429.31	1.18	702.57	59.62	105.70	11.08	40.31	7.16	1.37	5.30	0.79	4.72	0.96	2.61	0.38	2.74	0.38	14.47										



**Table 1.** Whole-rock chemistry in samples from plutonic rocks of the Santander Massif, Upper Magdalena Valley, and northern block of the Ibagué Batholith (*continued*).

Sample	Geological Unit	SiO <sub>2</sub>	TiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub>	MgO	CaO	Na <sub>2</sub> O	K <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	MnO	LOI	Li	Be	Sc	V	Cr	Co	Ni	Cu	Zn	Ga	As	Rb	Sr	Cs	Ba	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Tl	Pb	Bi	Th	U	Zr	Nb	Y	Ta	Hf
900827	San Cayetano Quartz Monzonite	58.26	0.8	17.2	6.4	2.45	5.05	3.55	3.54	0.27	0.18	3.86			19	105	22	20	15	72				141	510	4	614	44	80	10	36	7.7	1.7	6.8	1	5.4	1.1	3.4	0.48	3.2	0.5		11	20	5	422	11	27			
7	Las Minas Monzodiorite	58.1	0.9	17.2	7.4	3	6	3.7	2.2	0.3	0.1			17	150	17.7								48.6	609.8	0.7	780	21.8	45.7	5.7	23.2	4.6	1.3	4.3	0.7	3.7	0.8	2.1	0.3	2.1	0.3		2.7	0.7	120.6	6	21.3				
Ibagué Batholith																																																			
Sample	Geological Unit	SiO <sub>2</sub>	TiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub>	MgO	CaO	Na <sub>2</sub> O	K <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	MnO	LOI	V	Cr	Co	Ni	Cu	Zn	Ga	As	Rb	Sr	Cs	Ba	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Tl	Pb	Bi	Th	U	Zr	Nb	Y	Ta	Hf			
901059	Ibagué Batholith	65.57	0.52	15.73	4.45	2.21	4.89	3.39	1.72	0.156	0.109	1.17	84	11	13	11	7.8	60	22	1.9	38	747	1.1	499	26	46	5.8	22	3.9	0.99	3.7	0.57	2.8	0.54	1.7	0.24	1.6	0.25	0.19	4.2	0.03	7.5	1.7	114	5	17					
901064	Ibagué Batholith	50.34	1.39	16.69	9.83	6.29	9.80	2.76	1.16	0.170	0.238	1.24	291	66	33	18	12	125	27	1.6	39	629	3.6	309	17	37	5.7	27	5.9	1.5	5.6	0.94	5.5	1.1	3.2	0.45	2.8	0.42	0.24	3.1	0.03	0.84	0.33	94	6	29					
901070	Ibagué Batholith	58.01	0.77	17.39	6.48	3.80	6.31	3.51	1.59	0.154	0.145	1.77	141	34	31	24	29	94	25	1.8	51	595	0.51	441	15	30	4.2	18	4.0	1.1	3.9	0.65	3.8	0.76	2.2	0.33	2.1	0.32	0.28	5.2	0.05	2.9	0.91	104	5	21					
901072	Ibagué Batholith	61.08	0.65	15.41	6.05	3.96	4.99	3.60	2.22	0.222	0.133	1.53	135	42	32	32	50	88	23	2.1	68	681	0.73	742	24	44	6.2	28	5.1	1.3	4.8	0.65	3.3	0.63	1.9	0.26	1.7	0.25	0.37	3.8	0.05	6.5	1.3	152	5	17					
901079	Ibagué Batholith	58.95	0.77	15.55	6.81	3.51	4.20	2.59	3.27	0.191	0.139	3.66	144	58	23	15	24	77	22	1.7	112	363	1.1	1255	26	49	6.5	26	4.8	1.4	4.6	0.67	3.7	0.75	2.3	0.33	2.1	0.33	0.64	7.5	0.17	5.7	1.6	194	7	21					
901080	Ibagué Batholith	64.56	0.59	15.43	4.32	1.81	3.32	5.41	1.21	0.134	0.078	3.08	79	14	19	13	14	59	21	1.9	50	442	0.61	185	22	43	5.6	24	4.5	0.77	4.5	0.74	4.2	0.82	2.5	0.35	2.3	0.34	0.20	<2.0	0.02	8.1	1.9	185	7	24					
901098	Ibagué Batholith	61.28	0.68	17.21	5.57	2.80	5.17	3.44	1.76	0.218	0.139	1.62	105	15	20	13	6.9	78	24	1.7	38	826	0.57	638	27	49	6.0	25	4.5	1.2	4.4	0.61	3.3	0.63	2.0	0.27	1.8	0.28	0.15	3.1	0.03	5.5	1.0	136	5	19					
CI11A**	Ibagué Batholith	61.2	0.72	16.06	6.25	3.61	6.05	3.92	1.97	0.22	0.11	0.55	172.0		12.5	10.3	63.9	37.0	17.8		43.7	704.0	1.2	804.0	23.5	49.8	5.8	21.7	4.9	1.3	4.1	0.6	3.5	0.7	1.8	0.3	1.8	0.3		1.3	3.3	0.9	182.1	5.9	18.6	0.4	4.8				
CI2**	Ibagué Batholith	67.84	0.477	15.59	3.56	1.37	3.35	4.14	2.31	0.12	0.044	1.48	76	3.0		2	6	17	17		45	306	0.40	489	24	47	5.44	22	3.55	0.94	3.27	0.52	3.14	0.63	1.79	0.27	1.84	0.30		4	6	3	167	7.6	19	0.59	4.71				
CI9B**	Ibagué Batholith	57.8	0.82	17.88	6.86	3.93	7.15	4.04	0.84	0.17	0.12	0.79	172.0		5.0	10.1	23.9	22.0	17.9		12.2	503.6	0.6	318.0	12.8	27.4	3.4	13.8	3.3	1.1	3.4	0.6	3.3	0.7	1.9	0.3	1.8	0.3	0.5		0.4	1.3	0.3	112.5	6.0	17.3	0.4	3.0			
CI13**	Ibagué Batholith	61.7	0.67	16.35	5.45	3.02	5.43	3.81	1.83	0.13	0.10	1.25	138.0		17.2	7.3	52.6	32.0	16.6		41.0	458.0	0.6	475.0	18.8	44.9	5.6	26.1	5.6	1.2	5.9	1.0	5.1	1.2	3.3	0.5	3.2	0.5		2.3	8.3	5.0	151.0	8.0	31.3	0.6	4.6				
CI15**	Ibagué Batholith	58.91	0.746	16.79	6.00	3.70	6.66	3.60	1.38	0.16	0.119	0.78	166.5			13.5	27.3	72.6	18.9		36.0	402.4	1.12	292.2	13.4	33.6	4.54	16.7	4.40	1.12	4.26	0.71	4.31	0.90	2.48	0.36	2.35	0.38		6.7	5.1	1.4	130.6	7.3	24.2	0.52	3.31				
CI5B**	Ibagué Batholith	64.32	0.610	15.78	4.75	2.06	3.97	4.68	1.93	0.14	0.097	2.23	101.4			7.1	3.3	37.0	16.8		43.6	514.4	0.25	525.8	19.0	36.1	5.07	19.6	4.41	1.08	4.19	0.69	4.13	0.85	2.39	0.35	2.29	0.36		2.5	8.8	2.7	202.0	8.6	23.5	0.66	5.21				
CI7**	Ibagué Batholith	63.66	0.501	17.91	4.63	1.82	5.93	3.68	1.32	0.14	0.090	0.61	63.6			4.3	6.6	71.3	18.8		52.3	420.5	1.3	674.2	12.7	25.2	2.9	9.9	2.2	0.9	2.2	0.4	2.3	0.5	1.2	0.2	1.1	0.2		5.9	4.5	0.0	134.0	4.9	12.2	0.2	3.2				
CI10**	Ibagué Batholith	57.19	0.856	17.18	6.67	4.19	5.35	4.31	1.08	0.17	0.132	2.16	178.3			11.5	36.6	79.4	17.7		21.7	438.8	0.2	285.5	16.0	39.2	4.9	21.9	5.3	1.3	5.2	0.9	5.3	1.1	3.0	0.4	2.8	0.4		4.6	3.2	0.0	182.0	7.6	29.5	0.5	4.7				

Limit of Quantification														
SiO <sub>2</sub>	TiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub>	MgO	CaO	Na <sub>2</sub> O	K <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	Mn	V	Zr	Hf	LOI	FeO
(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(ppm)	(ppm)	(ppm)	(ppm)	(%)	(%)
0.36	0.04	0.18	0.10	0.10	0.10	0.11	0.08	0.024	100	66	130	69	0.10	0.13

Limit of Quantification																																					
Li	Be	Sc	V	Cr	Mn	Co	Ni	Cu	Zn	Ga	Rb	Sr	Y	Cd	In	Cs	Ba	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Tl	Pb	Bi	Th	U	
ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
μg/g	μg/g	μg/g	μg/g	μg/g	μg/g	μg/g	μg/g	μg/g	μg/g	μg/g	μg/g	μg/g	μg/g	μg/g	μg/g	μg/g	μg/g	μg/g	μg/g	μg/g	μg/g	μg/g	μg/g	μg/g	μg/g	μg/g	μg/g	μg/g	μg/g	μg/g	μg/g	μg/g	μg/g	μg/g	μg/g	μg/g	μg/g
0.5	0.1	0.05	0.2	0.5	0.8	0.8	0.5	1	4	0.2	0.2	1	0.1	0.08	0.005	0.05	1	0.1	0.1	0.1	0.1	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.01	2	0.05	0.1	0.005

Source: Data from Arango et al. (2015a, 2015b, 2015c, 2015d, 2015e); Bermúdez et al. (2015); Rodríguez et al. (2015a, 2015b, 2015c, 2015d, 2015e, 2016b); Zapata et al. (2015); \*van der Lelij (2013); \*\* Bustamante et al. (2016).