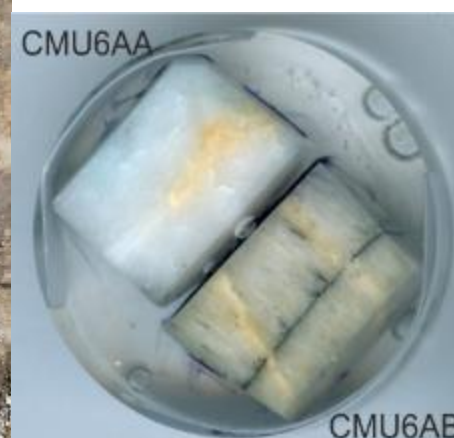


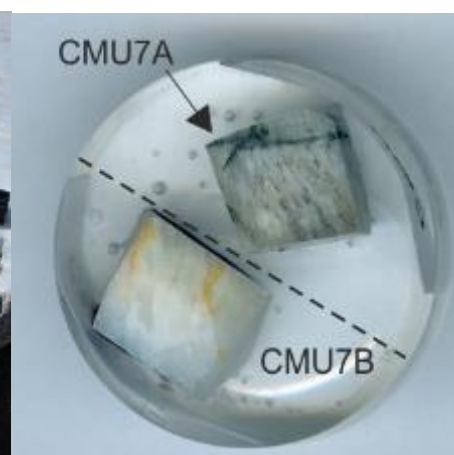
**Table S1. Images of samples in the field and in mounds prepared for U-Pb dating**

**Cerro Mocho (locality 1)**

Sample	Location	Description	Host rock	Age
CMU6	38° 1' 15.01" S 70° 27' 8.34" W	Beefs and E-W veins	Vaca Muerta Fm.	Yes



Sample	Location	Description	Host rock	Age
CMU7	38° 1' 15.10" S 70° 27' 8.19" W	Beefs and E-W veins	Vaca Muerta Fm.	Yes



Sample	Location	Description	Host rock	Age
CMU8	38° 1' 14.94" S 70° 27' 7.88" W	Beefs and E-W veins	Vaca Muerta Fm.	Yes



Sample	Location	Description	Host rock	Age
CMU9	38° 1' 16.13" S 70° 27' 6.38" W	Beefs NW-SE reverse faults	Vaca Muerta Fm.	Yes



## Cerro Mocho (locality 2)

Sample	Location	Description	Host rock	Age
CMF2	38° 8' 33.14" S 70° 9' 6.06" W	E-W sub-vertical calcite vein	Late Cretaceous volcanic dikes	No



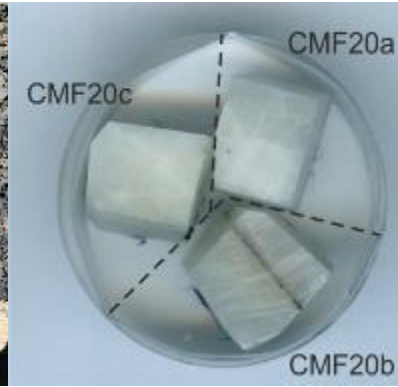
Sample	Location	Description	Host rock	Age
CMF3	38° 8' 33.27" S 70° 9' 6.21" W	E-W sub-vertical calcite vein	Late Cretaceous volcanic dikes	Yes



Sample	Location	Description	Host rock	Age
CMF19	38° 8' 16.31" S 70° 26' 24.01" W	Beef	Vaca Muerta Fm.	No



Sample	Location	Description	Host rock	Age
CMF20	38° 8' 16.81" S 70° 26' 24.40" W	Beef	Vaca Muerta Fm.	No



Sample	Location	Description	Host rock	Age
CMF23	38° 7' 37.67" S 70° 26' 10.02" W	Beef and bed-parallel slip surface	Vaca Muerta Fm.	Yes



Sample	Location	Description	Host rock	Age
CMF24	38° 7' 37.61" S 70° 26' 10.12" W	Beef	Vaca Muerta Fm.	No



Sample	Location	Description	Host rock	Age
CMF25	38° 7' 17.67" S 70° 25' 48.17" W	Beef	Vaca Muerta Fm.	Yes



Sample	Location	Description	Host rock	Age
CMF26	38° 7' 17.63" S 70° 25' 48.17" W	Strike-slip fault	Vaca Muerta Fm.	Yes



Sample	Location	Description	Host rock	Age
CMF27	38° 7' 17.48" S 70° 25' 48.22" W	Strike-slip fault	Vaca Muerta Fm.	Yes



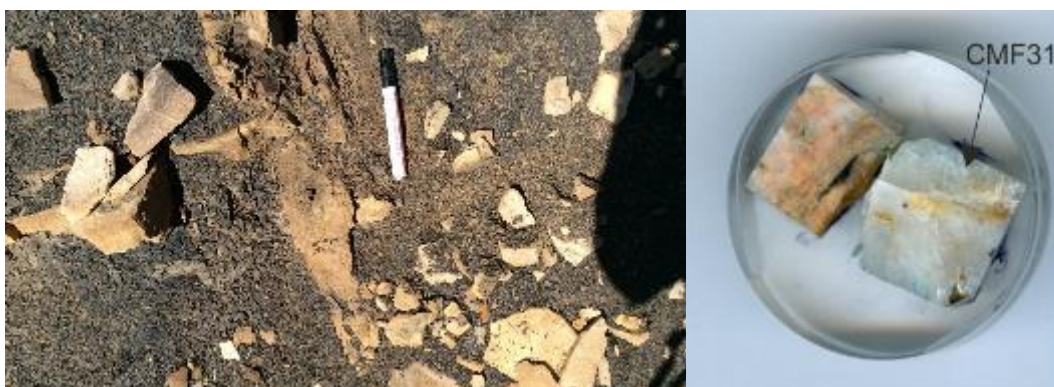
Sample	Location	Description	Host rock	Age
CMF28	38° 7' 4.48" S 70° 24' 25.06" W	Beef	Vaca Muerta Fm.	No



Sample	Location	Description	Host rock	Age
CMF30	38° 7' 4.32" S 70° 24' 24.88" W	Beef	Vaca Muerta Fm.	Yes



Sample	Location	Description	Host rock	Age
CMF31	38° 7' 4.54" S 70° 24' 25.01" W	E-W vein	Vaca Muerta Fm.	Yes



## La Yesera

Sample	Location	Description	Host rock	Age
YE10	37° 17' 19.28" S 69° 51' 41.79" W	Beef	Vaca Muerta Fm.	Yes



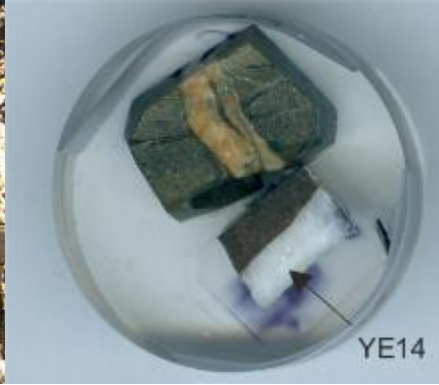
Sample	Location	Description	Host rock	Age
YE11	37° 17' 19.46" S 69° 51' 41.07" W	Beef	Vaca Muerta Fm.	No



Sample	Location	Description	Host rock	Age
YE12	37° 17' 19.24" S 69° 51' 41.43" W	Beef	Vaca Muerta Fm.	No



Sample	Location	Description	Host rock	Age
YE14	37° 17' 19.42" S 69° 51' 42.10" W	E-W vein	Vaca Muerta Fm.	No





## Sierra de Reyes

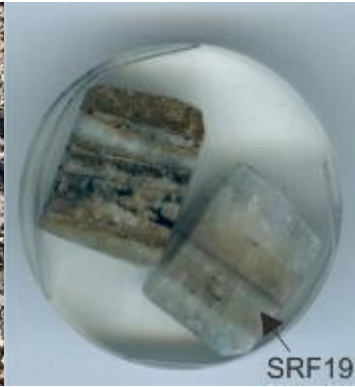
Sample	Location	Description	Host rock	Age
SRF16	37° 1' 54.87" S 69° 42' 32.95" W	E-W vein	Vaca Muerta Fm.	Yes



Sample	Location	Description	Host rock	Age
SRF17	37° 1' 50.80" S 69° 42' 21.13" W	E-W vein	Vaca Muerta Fm.	Yes



Sample	Location	Description	Host rock	Age
SRF19	37° 2' 9.28" S 69° 42' 29.42" W	Beef	Vaca Muerta Fm.	No



## Cara Cura

Sample	Location	Description	Host rock	Age
CCF32	36° 33' 27.25" S 69° 32' 44.64" W	Bed-parallel vein	Agrio Fm.	Yes



Sample	Location	Description	Host rock	Age
CCF33	36° 33' 24.40" S 69° 32' 40.80" W	E-W vein	Agrio Fm.	Yes



Sample	Location	Description	Host rock	Age
CCF35	36° 33' 31.53" S 69° 32' 30.97" W	Reverse fault	Agrio Fm.	Yes



Sample	Location	Description	Host rock	Age
CCF36	36° 33' 29.73" S 69° 32' 32.80" W	E-W veins	Vaca Muerta Fm.	No

