High Abundance of Stardust in the CO3.0 Chondrite LaPaz 031117. P. Haenecour[1,2] and C. Floss[1,3]. [1]Laboratory for Space Sciences, [2]Department of Earth and Planetary Sciences, [3]Department of Physics, Washington University, St. Louis, 63130, Missouri, USA. E-mail: haenecour@wustl.edu.

Introduction: Presolar silicate grains have been found in high abundance only in a few highly primitive meteorites, including the carbonaceous chondrites Acfer 094 (C ungrouped), ALHA 77307 (CO3.0), QUE 99177 (CR3.0) and MET 00426 (CR3.0) [e.g. 1-3]. The recent discovery of a possible new pristine CO3.0 chondrite, LaPaz 031117 [4] has led us to carry out a reconnaissance study in order to evaluate the abundance of presolar grains in this meteorite. Here we report the results for our first search of carbon- and oxygen-bearing presolar grains in LAP 031117.

Experimental: Using the Cameca NanoSIMS 50 at Washington University, we carried out raster ion imaging ($^{12,13}C^-$ and $^{16,17,18}O^-$) in the matrix material of a thin-section of LAP 031117. A focused primary Cs^+ beam of ~1 pA (~100 nm in diameter) was rastered over surface areas of 10×10 μm^2 (256^2 pixels) and the $^{12,13}C^-$ and $^{16, 17,18}O^-$ secondary ions, as well as secondary electrons were collected in multi-collection mode. All measurements were made within the same matrix area and the total area mapped was 1,250 μm^2.

Results and Discussion: To date we have identified six oxygen-anomalous grains, all of which are ^{17}O-rich relative to solar ($^{17}O/^{16}O_{solar}$ = $3.8x10^{-4}$ and $^{18}O/^{16}O_{solar}$ = $2.0x10^{-3}$), with $^{17}O/^{16}O$ ratios between $5.01x10^{-4}$ and $1.39x10^{-3}$. Three grains also exhibit moderate ^{18}O depletions. Based on the classification proposed by [5], the six ^{17}O-rich grains belong to group 1 and are likely to have formed in the envelopes of low- to intermediate-mass red giant or AGB stars with close-to-solar or slightly lower-than-solar metallicity.

We also found two C-anomalous grains in LAP 031117. One is ^{13}C-rich ($^{12}C/^{13}C$ = 65.7 ± 0.9) and is likely to be a mainstream SiC grain. The other one is ^{12}C-rich, with a $^{12}C/^{13}C$ ratio of 101.4 ± 2.4.

Based on the limited area measured to date, we estimate an abundance of oxygen-bearing grains of 173 ± 58 ppm (without correcting for detection efficiency), comparable to the range of abundances observed in other primitive carbonaceous chondrites (up to 220 ppm) [1-3]. These preliminary results suggest that this meteorite indeed did not undergo significant secondary processing, such as aqueous alteration and thermal processing metamorphism, and may be a promising new source of presolar silicate grains. However, other matrix areas in LAP 031117 will need to be investigated in order to ensure that the high abundance found in our initial survey is indeed representative of the whole meteorite. Auger electron spectroscopy will then be used to obtain the elemental compositions of the grains identified.

References: [1] Floss C. and Stadermann F. J. 2009. *Geochemica et Cosmochemica Acta* **73** : 2415-2440. [2] Nguyen et al. 2010. *Astrophysical Journal*, **719** : 166-189. [3] Bose et al. 2010. *Astrophysical Journal*, **714** : 1624-1636. [4] Chizmadia L. J. and Cabret-Lebrónt E. 2009. Abstract #2031. 40th Lunar & Planetary Science Conference. [5] Nittler L. R. et al. 1997. *Astrophysical Journal* **483**: 475-495.