PURINES AND PYRIMIDINES IN CARBONACEOUS CHONDRITES: A RE-ANALYSIS. Z. Martins[1], O. Botta[2], M. A. Sephton[3], P. Ehrenfreund[1,4], [1]Astrobiology Lab, Leiden Institute of Chemistry, P.O. Box 9502, 2300 RA Leiden, The Netherlands E-mail: z.martins@chem.leidenuniv.nl [2]International Space Science Institute, Hallerstrasse 6, CH-3012 Bern, Switzerland, [3]The Open University, Walton Hall, Milton Keynes, MK7 6AA, UK, [4]Astronomical Institute "Anton Pannekoek", University of Amsterdam, Kruislann 403, 1098 SJ Amsterdam, The Netherlands.

The nucleic acids DNA and RNA have a central role in the storage, transcription and translation of genetic information in all known organisms. These biopolymers are made up of building blocks called nucleotides, each one having a nucleobase (a purine or a pyrimidine), a sugar unit and a phosphate linker.

The origin and distribution of purines and pyrimidines in carbonaceous chondrites is not yet constrained. Since nucleobases are difficult to detect in carbonaceous chondrites due to their low abundance and underlying UV absorving material of unknown origin, an optimal extraction and purification procedure is still under development.

We analyze the abundances of purines and pyrimidines in the formic acid extract of Murchison (Table 1) and Orgueil, compare it to those reported by Stoks and co-workers [1,2] and to the results obtained by Glavin *et al.* with an extraction technique using sublimation [3].

Although there is no correlation between the nucleobases present in Murchison and the nucleobases in geological environments on Earth [4,5], there is no certainty of an indigenous origin of the nucleobases in carbonaceous chondrites. GC-MS measurements of derivatized nucleobases are used to analyze these compounds, followed by the determination of carbon and nitrogen isotopic values in carbonaceous chondrites.

We report the purines and pyrimidines content of Murchison soil, and compare the distribution of nucleobases to data of the Murchison meteorite.

Table 1-Summary of nucleobases concentration in the formic acid extracts of Murchison meteorite (in ppb)

Nucleobases	Stoks [1,2]	Glavin [3]	Our study
Uracil	33	145	131
Thymine	1	<255	41
Guanine	234	<16	<11
Xanthine	530	356	10
Hypoxanthine	215	232	156
Adenine	267	204	95

References: [1] Stoks, P. G. and Schwartz, A. W. 1979. *Nature 282*:709-710. [2] Stoks, P.G and Schwartz, A. W. 1981. *Geochimica et Cosmochimica Acta 45*:563-569. [3] Glavin, D. P. and Bada, J. L. 2004. Abstract #1022. 35th Lunar & Planetary Science Conference. [4] Van Der Velden, W. And Schwartz, A. W. 1974. *Science 185*: 691-693. [5] Van Der Velden, W. And Schwartz, A. W. 1976. *Chemical Geology 18*: 273-284.