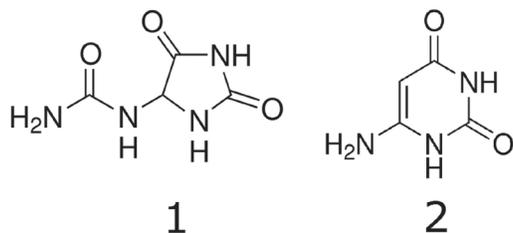
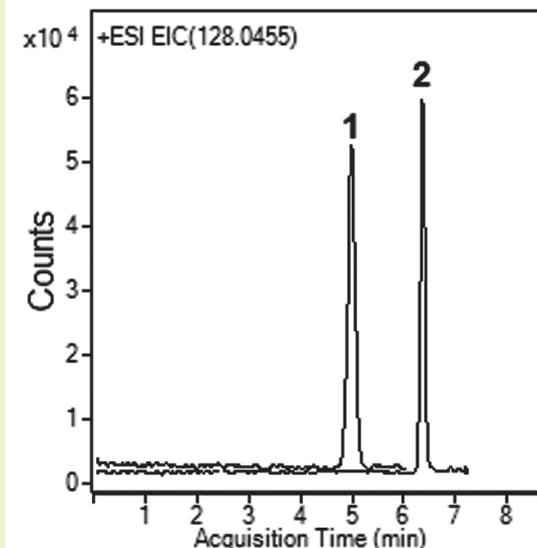


# Uric Acid (UA) Metabolites

## Allantoin and 6-Aminouracil



**Note:** Humans lack the enzyme (uricase) which converts UA to allantoin. However the compound still can be detected in human urine samples. UA can react with an oxidant in a step reaction and the end product is allantoin. When UA is degraded, it can't be renewed. The presence of allantoin in urine is an indicator of a disease state (oxidative stress, renal failure, diabetes, etc.). The allantoin/UA ratio is also elevated in Down syndrome and chronic lung disease. 6-aminouracil is a direct product of reaction of UA with nitric oxide, which has a role in cardiovascular disease.

### Method Conditions

**Column:** Cogent Diol™, 4µm, 100Å

**Catalog No.:** 40060-15P-3

**Dimensions:** 3.0 x 150 mm

**Mobile Phase:** A: DI H<sub>2</sub>O / 0.1% formic acid (v/v)  
B: Acetonitrile / 0.1% formic acid (v/v)

Gradient:	time (min.)	%B
	0	95
	1	95
	6-7	30
	8	95

**Injection vol.:** 1 µL

**Flow rate:** 0.4mL/min

**Detection:** ESI - POS - Agilent 6210 MSD TOF mass spectrometer

**Sample:** 200 µL of urine sample was centrifuged at 14,000 rpm for 10 min two times. The supernatant was diluted 1: 2 with acetonitrile and centrifuged again at 14,000 rpm for 5 min. The filtrate was injected into LC-MS.

**Peaks:** 1. Allantoin 159.0513 m/z [M+H]<sup>+</sup>  
2. 6-aminouracil 128.0455 m/z [M+H]<sup>+</sup>

**t<sub>0</sub>:** 0.9 min

### Discussion

The presented method for analysis of UA metabolites in human urine is very simple and doesn't require mobile phase additives or pre-column derivatization. The peaks are symmetrical and the MS signal is not diminished as is the case when ammonium formate or acetate is used as the mobile phase additive. The analyzed metabolites are signature end products for UA degradation in the presence of oxidants and can be used as biomarkers for different disease states.

Cogent columns are known for very fast equilibration between gradient runs and can be successfully used in studies of pathways in human pathology.