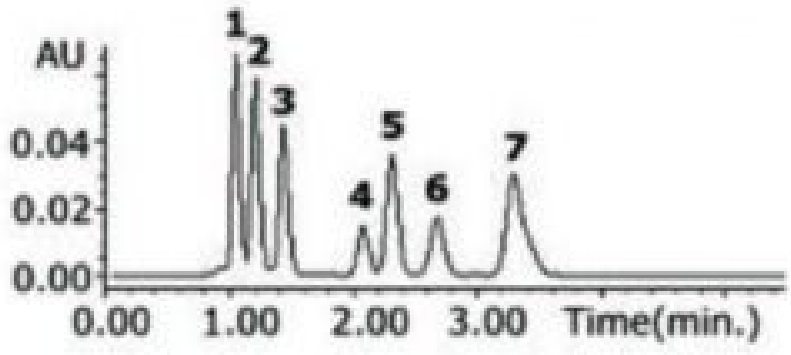
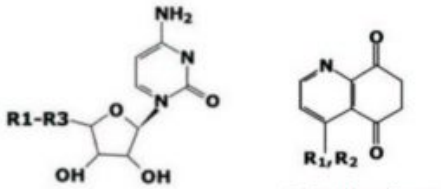
Cancer Prodrug Analyzed with HPLC – AppNote

Separation Achieved with Shape Selectivity and Hydrophobic Interaction

This Method provides an example of Reversed Phase Separation containing a number of related compounds. The properties of the solutes are listed in the Table below.

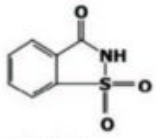
When comparing the properties of Compounds 2 and 3, it is interesting to note that 2 is more hydrophobic than 3 but it's Retention is shorter. The Method uses Shape Selectivity as well as Hydrophobic Interaction which may explain why the less hydrophobic compound is retained longer. In general, the more polar compounds elute earlier than the more hydrophobic species. Compound 7 has no polar functionalities at all so it is the most retained under Reversed Phase conditions.



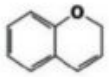


Cytidine derivatives

Quinolinedione derivatives



Saccharin



Benzopyran

Peaks:

1. Cytidine-R1
2. Cytidine-R2
3. Cytidine-R3
4. Quinolinedione-R1
5. Saccharin
6. Quinolinedione-R2
7. Benzopyran

Method Conditions

Column: Cogent UDC Cholesterol™, 4µm, 100Å

Catalog No.: 69069-7.5P

Dimensions: 4.6 x 75mm

Mobile Phase: 60:40 Acetonitrile / DI Water + 0.5% Perchloric Acid

Injection vol.: 5µL

Flow rate: 1mL / minute

Detection: UV @ 270nm

Sample Preparation: 1mg / mL of each in Acetonitrile + DI Water

Table:

Solute	Mol Wt.	B pKa	Log P
Cytidine-R1	397	3.73	1.54
Cytidine-R2	454	3.73	3.66
Cytidine-R3	425	3.73	2.66
Quinolinedione-R1	536	–	3.46
Saccharin	536	5.36	2.96
Quinolinedione-R2	520	–	2.74
Benzopyran	396	–	2.80

Attachment

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