

# NASA TECH BRIEF

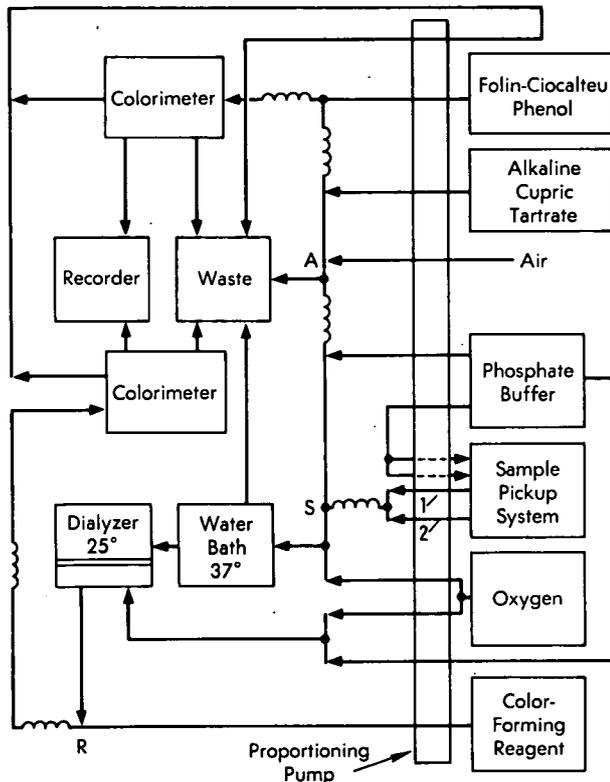
## Ames Research Center



NASA Tech Briefs announce new technology derived from the U.S. space program. They are issued to encourage commercial application. Tech Briefs are available on a subscription basis from the National Technical Information Service, Springfield, Virginia 22151. Requests for individual copies or questions relating to the Tech Brief program may be directed to the Technology Utilization Office, NASA, Code KT, Washington, D.C. 20546.

### Automated Method for Study of Drug Metabolism

An automated system for assaying drug metabolism by a continuous flow-through technique has been devised; basic, commercially available equipment or-



dinarily used for automated analyses can readily be modified to accommodate the analytical scheme

shown in the flow diagram. Unlike prior semiautomated methods, the newly developed system includes steps and devices for mixing the drug with enzyme and cofactor in the presence of pure oxygen, dialyzing the resulting metabolite against buffer, and determining the amount of metabolite by a colorimetric method.

As indicated in the diagram, the cofactor-substrate is picked up in line 1 and the enzyme is picked up in line 2; the pickup system includes a device which automatically refills a trough or reservoir to a predetermined level. After mixing, the sample is split into two portions at S; one portion of the sample (for determination of protein) is diluted with buffer and aerated at point A. Then, the mixture is combined with alkaline cupric tartrate and, a short time later, with aqueous Folin-Ciocalteu phenol; subsequently, the mixture is delivered to the colorimeter. The other portion of the sample is oxygenated in line 2, incubated in a coil of tubing at 37°C for about 10 minutes to form the metabolite, and then dialyzed. A suitable color-forming reagent is mixed with the metabolite at R and, after a short time, the concentration of metabolite is determined in a colorimeter.

#### References:

1. Furner, R.L., and Feller, D.D.: Improved Automated Method for the Study of Drug Metabolism. *Biochemical Pharmacology*, vol. 21, p. 1549, 1972.
2. Furner, R. L.: Automated Method for Studying the Hepatic Metabolism of Aniline, Ethylmorphine, or *p*-Nitroanisole. *Biochemical Pharmacology*, vol. 20, p. 3161, 1971.

(continued overleaf)

**Note:**

No additional documentation is available. Specific questions, however, may be directed to:

Technology Utilization Officer  
Ames Research Center  
Moffett Field, California 94035  
Reference: B 73-10030

**Patent status:**

This invention is owned by NASA, and a patent

application has been filed. Inquiries concerning non-exclusive or exclusive license for its commercial development should be addressed to:

NASA Patent Counsel  
Mail Code 200-11A  
Ames Research Center  
Moffett Field, California 94035

Source: Raymond L. Furner and David D. Feller  
Ames Research Center  
(ARC-10469)