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\( \text{\textsuperscript{13}Ala}^{2-}[\text{tyrosyl}]-3,5-\text{\textsuperscript{3}H}] \) enkephalin
TRK.564 15–30Ci/mmol

\([\text{\textsuperscript{3}H}] \) Kainic acid
TRK.566 2–10Ci/mmol

\([\text{methyl-\textsuperscript{1},2'\textsuperscript{3}}] \) Thymidine
TRK.565 70–100Ci/mmol

(\text{\textsuperscript{11,12(n)-\textsuperscript{3}H}}) Chenodeoxycholic acid
TRK.562 25–50Ci/mmol

(\text{\textsuperscript{11,12(n)-\textsuperscript{3}H}}) Lithocholic acid
TRK.560 25–50Ci/mmol

\( \text{17\alpha-\text{Hydroxy-11-deoxy [1,2-\textsuperscript{3}H}] corticosterone} \)
TRK.557 40–60Ci/mmol

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Vol. 52, No. 6  JUNE 1977

CONTENTS

Editorial Review: The chemical control of the cerebral circulation. By I. R. CAMERON
Studies on the kinetics of unconjugated [14C]bilirubin metabolism in normal subjects and patients
with compensated cirrhosis. By D. OWENS, E. A. JONES and E. R. CARSON
The effect of dietary sodium intake on the blood pressure and cardiac output responses to angiotensin II
in anaesthetized rats. By BARBARA L. SLACK and J. M. LEDINGHAM
Plasma calcitonin in chronic renal failure: relation to other factors of importance in bivalent ion meta-
Enzyme activities of cells of different types isolated from livers of normal and cholestatic rats. By
A. M. WOOTTON, G. NEALE and D. W. MOSS
Plasma renin levels and systemic haemodynamics in essential hypertension. By R. FAGARD, A. AMERY,
T. REYBOUCK, P. LINEN, L. BILLIT and J. V. JOOSENS
Mitochondrial functions and content of microsomal and mitochondrial cytochromes in human cir-
rhosis. By J. DIAZ GIL, I. ROSSI, P. ESCARTIN, J. M. SEGUVIA and M. GOSALVEZ
Intestinal absorption of glycine and glycyl-L-proline in the rat. By R. C. HEADING, H. P. SCHEDL,
L. D. STEGINK and D. L. MILLER
Prostaglandin activity in sustained inflammation of human skin before and after aspirin. By N. A.
PLUMMER, C. N. HENSBY, A. KORZA BLACK and M. W. GREAVES
Effect of warfarin on the metabolism of phytolquinone (vitamin K1): dose-response relationships in
man. By M. J. SHEARER, A. MCBURNIE, A. M. BRECKENRIDGE and P. BARKHAN

SHORT COMMUNICATION

The effect of chronic frusemide administration on intracellular potassium, sodium and pH of cardiac
and skeletal muscle. By R. J. C. HALL and I. R. CAMERON

CORRESPONDENCE SECTION

A competitive protein-binding assay for 25-hydroxy vitamin D. By G. N. HENDY, E. DOLEV, J. M.
PETTIFOR, F. P. ROSS and J. WANG

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## Selective Cleaving Reagents

### Iodotrimethylsilane

Iodotrimethylsilane (1) has recently been introduced by Jung and Olah as an efficient and convenient reagent for the cleavage of esters and ethers under neutral conditions. Iodotrimethylsilane has advantages over other dealkylating agents in that mild, homogeneous reaction conditions can be employed. Hence, a mixture of 1 and a carboxylic ester, either neat or in an aprotic solvent, gave the corresponding acid on heating and subsequent aqueous hydrolysis.

\[
\text{RCO}_2R' + \text{Me}_3\text{SiI} \rightarrow \text{RCHO} + \text{Me}_3\text{SiCl}
\]

**tert-Butyl and benzyl esters were rapidly dealkylated at 25°C, whereas methyl, ethyl, and isopropyl esters required higher reaction temperatures.**

Iodotrimethylsilane has also been used to cleave alkyl and aryl ethers. Jung and Lyster have recently examined cleavage conditions for a wide variety of ethers. For example, heating an excess of iodotrimethylsilane with alkyl aryl ethers gave good yields of aromatic trimethylsilyl ethers (2). These may be converted to their respective alcohols by simple hydrolysis.

\[
\text{ArOR} \xrightarrow{\text{1, } \text{H}_2\text{O}} \text{ArOR} + \text{H}_2\text{O} \xrightarrow{\text{2, } \text{H}_2\text{O}} \text{ArOR}
\]

Certain alkyl ethers are selectively and quantitatively cleaved, as shown in the following equation:

\[
\text{C}_2\text{H}_5\text{OR} \xrightarrow{\text{1, } \text{H}_2\text{O}} \text{C}_2\text{H}_5\text{OSiMe}_3 + \text{H}_2\text{O} \xrightarrow{\text{2, } \text{H}_2\text{O}} \text{C}_2\text{H}_5\text{OH}
\]

The ester and ether cleavages with iodotrimethylsilane apparently do not affect isolated double bonds, ketones, thiethers, amines, or amides.

Aldrich offers iodotrimethylsilane in 5- and 25-g units, stored over copper.

**References:**

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**Craftsmen in Chemistry**

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