UNIVERSITY OF THE WITWATERSRAND,
JOHANNESBURG AND SOUTH AFRICAN INSTITUTE
FOR MEDICAL RESEARCH
Chair of
Chemical Pathology

Applications are invited for appointment to the above post on the joint staff
of the University and the Institute in the School of Pathology.

The salary attached to the post is R 15 600 per annum plus a 10% pensionable
allowance (£1 = R1.50 approx.). In addition, generous remuneration for
approved overtime duties is given.

*Intending applicants in the United Kingdom may obtain the information sheet relating
to this post from the London Representative, University of the Witwatersrand,
278 High Holborn, London WC1. The information sheet may also be obtained from
The Registrar, University of the Witwatersrand, Jan Smuts Avenue, Johannesburg,
South Africa, 2001 with whom applications should be lodged by 31st August 1977.*
LECTINS

As a major producer of lectins, FITC-conjugated lectins and immobilized lectins, we are pleased to announce the development of four new lectins from lentil seed and castor bean. These are available in both the free and immobilized forms as well as the FITC derivatives.

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ALSO AVAILABLE: In free and agarose-immobilized forms and as FITC-derivatives:
- Concanavalin A and Con A Salts
- Fucose Binding Protein (from lotus seed)
- Soybean Agglutinin
- Wheat Germ Agglutinin
- Ferritin-Concanavalin A (for Electron microscopy)

AVAILABLE SOON: Phytohemagglutinin

More detailed description of these products can be found in our new Biochemicals Catalog. If you don’t have one, write the office nearest you for your free copy.
Traumatic Acid

Traumatic acid (trans-2-dodecenedioic acid, 1), first isolated from green bean pods (Phaseolus vulgaris) by English et al. in 1939, was shown to be capable of promoting renewed growth activity in mature, uninjured cells and tissues. Therefore, it was classed as a plant "wound hormone." Later that year, the same authors reported the structure determination and total synthesis of traumatic acid.²

![Chemical structure of traumatic acid]

An important synthetic application of traumatic acid is its conversion to keto ester 2a, a useful prostaglandin intermediate for a variety of 11-deoxyprostanoids such as PGB₁, 11-deoxy-PGE₁, 11,15-bis-deoxy-PGE₁ (also -PGE₂ and -PGF₂α), 11-deoxy-13,14-dihydro-PGE₁, 11-deoxy-13,14-dihydro-PGF₂α (also -PGF₂β) and 11-deoxy-PGF₁α.³ The transformation of traumatic acid to the keto ester 2a is achieved by treatment with polyphosphoric acid, followed by esterification with methanolic HCl.⁷

1 1) PPA  
2) MeOH, HCl  

Keto ester 2a, has been converted to the hydroxy-keto ester 3a, which has been successfully transformed into 15-deoxy-PGE₁⁸ and PGE₁.⁴⁹

![Conversion of keto ester 2a to hydroxy-keto ester 3a]

2a and b → COOR

Methods used to perform this transformation include: microbial hydroxylation of 2b (using Aspergillus niger), which proceeds with partial asymmetric induction giving 3b³⁰ and allylic bromination of 2a, followed by replacement with acetate and hydrolysis, producing racemic 3a.¹¹

Synthesis of optically active 3a as an intermediate to PGE₁ was recently reported by Stork.¹² Protected α-glyceraldehyde 4 was used as the starting material to produce intermediate 3a with the correct absolute configuration. The stereocchemistry of the remainder of the PGE₁ molecule was controlled by the chiral center of the α-glyceraldehyde moiety.

Traumatic acid has also been used as a detergent additive to reduce skin irritation,¹³ as an antiviral agent,¹⁴ and as a vulnerary (wound-healing) agent.¹⁵ These and other uses for traumatic acid are currently under investigation.

References:

17,724-5 Traumatic acid 1g $11.85; 5g $39.55
G478-0 α-Glyceraldehyde 250mg $13.50; 1g $35.35

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