Vicia cretica: a powerful lectin for T- and Th- but not Tk- or other polyagglutinable erythrocytes

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SUMMARY Extracts of the seeds of *Vicia cretica* (NO Leguminosae) strongly agglutinate T- and Th- but not Tk- or other polyagglutinable red cells. The *V. cretica* lectin is therefore a very useful laboratory reagent in the elucidation of erythrocyte polyagglutination due to T-like erythrocyte cryptantigens.

For many years the peanut (*Arachis hypogaea*) lectin¹ has been of fundamental importance in the classification of red cell polyagglutinability.² It strongly agglutinates T-, Th-, and Tk-polyagglutinable erythrocytes, which are distinguished from one another (Table) by tests with the soya bean (*Glycine soja*) and *Bandeiraea simplicifolia* (BS II) lectins.

Material and methods

Vicia cretica seeds were obtained from the Seed Bank of the Royal Botanic Gardens, Kew. Extracts were prepared and tested as described by Bird.³ Red cells were obtained from the comprehensive panel held in our laboratory. Agglutination tests were carried out by both tile and tube techniques.⁴

Normal group O erythrocytes were made Tk-polyagglutinable by the methods described by Doinel *et al.*⁵ with (1) a selected *Bacteroides fragilis* culture supernatant, and (2) a purified endo- β -galactosidase from *Escherichia freundii*, prepared by Dr MN Fukuda of Seattle.

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Results

V. cretica seed extract strongly and avidly agglutinates T- and Th-red cells, but not Tk- or those of other known forms of polyagglutinability. Protease-treated cells are not agglutinated. Its reaction on T-transformed red cells is as powerful as that of the peanut lectin. Its avidity for Th-erythrocytes was consistently greater than that of the peanut lectin. It failed to agglutinate Tk-polyagglutinable cells (without concomitant T-transformation) even after the cells had been treated with papain, which enhances Tk. The reactions obtained with *V. cretica* seed extract and with other lectins relevant to the classification of T-like erythrocyte receptors are given in the Table.

Discussion

Other lectins known to agglutinate T-transformed cells include *Tephrosia hookeriana*, *Thermopsis caroliniana*, and *Thermopsis montana*.⁶ These lectins are, however, inferior to the peanut lectin, whereas the *V. cretica* lectin is as powerful. *V. cretica* is indigenous to Crete and eastern Greece; its seeds are

Interaction of T and T-like erythrocytes with a select panel of lectins

Lectins	Red cells				
	T	Tk (B. fragilis)	Tk (E. freundii)	Th	Protease-treated
<i>Arachis hypogaea</i>	+++	+++	-	+++	-
<i>Glycine soja</i>	+++	-	-	-	+++
BS II*	-	+++	+++	-	-
<i>Vicia cretica</i>	+++	-	-	+++	-

*A second isolectin from *Bandeiraea simplicifolia*.

not as easy to obtain as peanuts. The *V. cretica* lectin is therefore unlikely to replace the peanut lectin in routine laboratory investigation of erythrocyte polyagglutinability, but we have no doubt that the *V. cretica* lectin will fulfil a very useful role in specialised laboratories in the investigation of red cell polyagglutinability.

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