



Prof. dr. J.F. Arens 1914-2001



Prof. dr. J.F.G. Vliegthart

In 1969, I was asked by Professor Arens and one of his co-workers, Assistant Professor Vliegthart, of the Bio-Organic Chemistry Group at Utrecht University to work on a PhD project focused on the structural analysis of oligosaccharides and glycoconjugates using EI-MS. Both were familiar with the sequencing of small peptides using EI-MS, but had no knowledge in the carbohydrate field.

So, before starting, I had to teach myself carbohydrate chemistry without any helpdesk.

## The Early Days.

## Description

## From PhD to Post-Doctoral Stays



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Prof. dr. J.F.G. Vlieg

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*Carbohydrate Research*  
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*71.5.*

*Schick*

79

MASSENSPEKTROMETRISCHE UNTERSUCHUNGEN

XIX. MITTEILUNG\*. KOMBINATION VON GASCHROMATOGRAPHIE UND MASSENSPEKTROMETRIE ZUR ANALYSE PARTIELL METHYLIERTER ZUCKERDERIVATE. DIE MASSENSPEKTREN VON PARTIELL METHYLIERTEN METHYLGLUCOSIDEN

K. HEYNS, K. R. SPERLING UND H. F. GRÜTZMACHER

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As a start, Hans Vliegthart gave me two papers of the group of Professor Heyns of the University of Hamburg

*Carbohydrate Research*  
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Printed in Belgium

MASSENSPEKTROMETRISCHE UNTERSUCHUNGEN

XVII. MITTEILUNG\*. DIE MASSENSPEKTROMETRISCHE BESTIMMUNG DER VERKNÜPFUNGSTELLEN AMINOZUCKERHALTIGER POLYSACCHARIDE. MASSENSPEKTREN VON DERIVATEN DER 2-AMINO-2-DESOXY-D-GALAKTOSE

K. HEYNS, G. KIESSLING UND D. MÜLLER

*Institut für Organische Chemie der Universität Hamburg (Deutschland)*

(Eingegangen den 1. Dezember, 1966; modifiziert den 13. Februar, 1967)

A free instruction: "Explore the possibilities of EI-MS for carbohydrate analysis".

Reading more literature about carbohydrate analysis showed me the value of NMR spectroscopy.

I proposed my supervisors to include also NMR in my PhD project and they agreed.

The available MS and NMR instruments at Utrecht University in the 1970s were:



Varian  
XL-100 NMR



AEI MS-100



## STRUCTURE DETERMINATION OF OLIGOSACCHARIDES

AN INVESTIGATION OF PERTRIMETHYLSILYL DERIVATIVES  
BY MASS SPECTROMETRY AND PMR SPECTROSCOPY



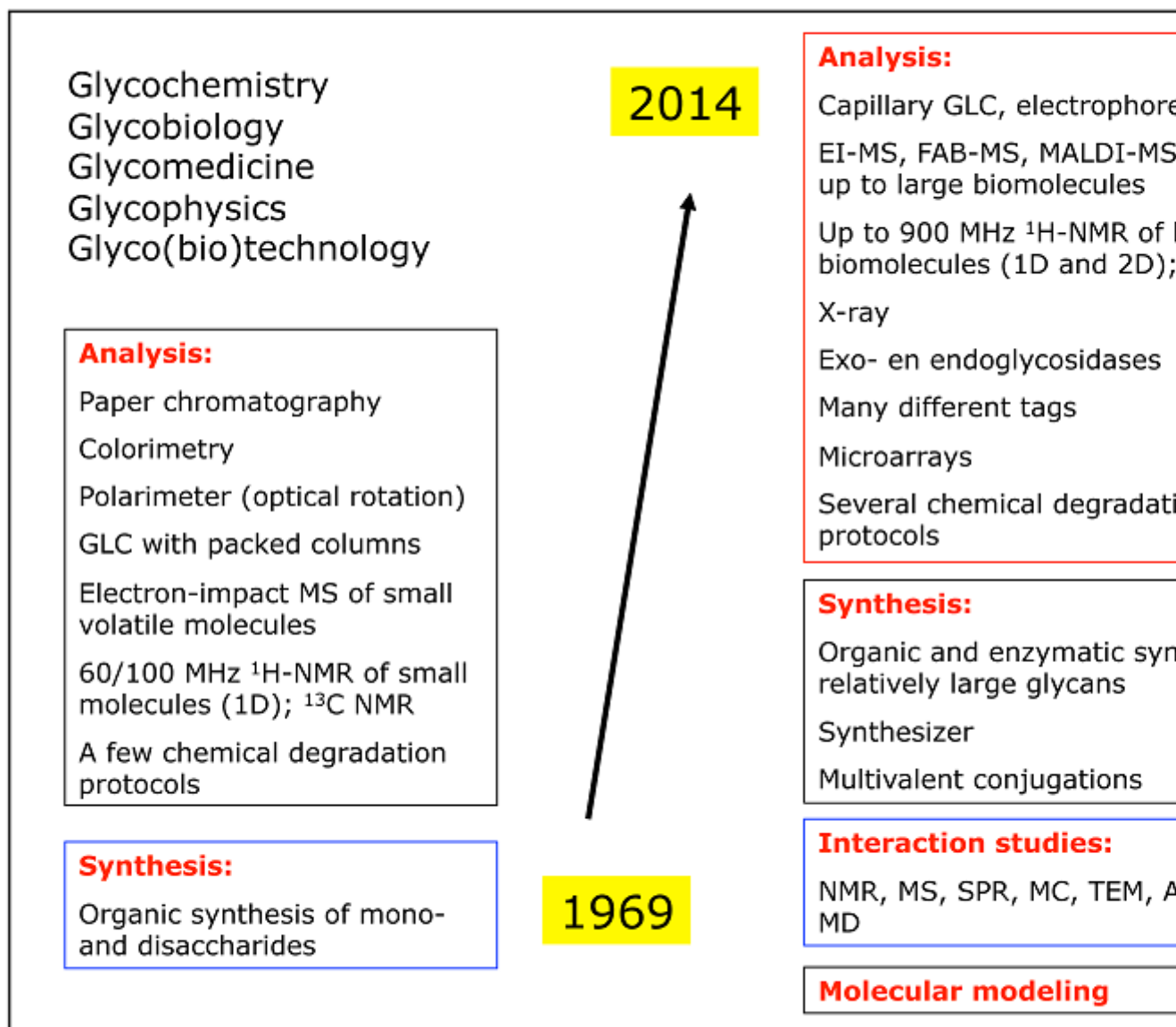
HANS KAMERLING

Electron impact mass spectra of pertrimethylsilylated disaccharides with different linkage types.

100-MHz  $^1\text{H}$  NMR spectroscopy of pertrimethylsilylated disaccharides with different linkage types.



12 June 1972





I did not leave the group in 1972 and got a temporary position as Assistant Professor at Utrecht University. A contract that was prolonged a couple of times, until I got a permanent position (Associate Professor) in 1978.

At the end of the seventies Hans Vliegthart got permission from Professor Arens to start his own research group on carbohydrates and glycoconjugates. And I stayed with him.

But I did not know that this should become a stay together until his retirement in 2001.

To explore fundamental questions in “structural functional glycomics” via a multidisciplinary carbohydrate-based program, built up from three domains

structural **analysis** of polysaccharides and glycoconjugates

1969-2014

chemical / enzymatic **synthesis** of oligosaccharides and glycoconjugates

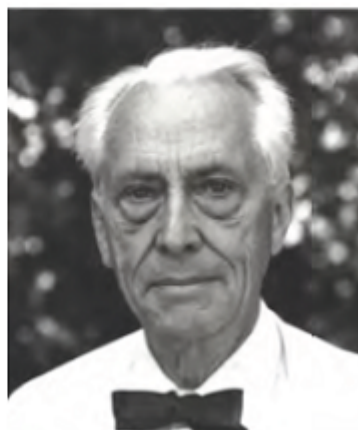
1973-2009

carbohydrate-protein and carbohydrate-carbohydrate **interactions**

1994-2009



Prof. dr. Bengt Lindberg  
1919-2008



Prof. dr. Akira Kobata



### Learning abroad (2x three months)

The kitchen secrets "anno 1974" of the structural analysis of bacterial polysaccharides I learned in the Lindberg group at the University of Stockholm.

The kitchen secrets "anno 1981" of the preparation, the separation and the structural analysis of glycoprotein-derived glycans I learned in the Kobata group at the University of Kobe.

## Category

1. News