

[Chemical & Engineering News](#)

Serving the chemical, life sciences and laboratory worlds

[Science & Technology](#)[Home](#) » [July 13, 2009 Issue](#) » [Science & Technology](#) » [Concentrates](#) » Dendritic Chain Reaction Drives Signal Amplification

July 13, 2009

Volume 87, Number 28

p. 27

Dendritic Chain Reaction Drives Signal Amplification

Non-PCR method based on dendrimer self-destruction amplifies the signal of biological and nonbiological analytes for diagnostic tests

[Sophie L. Rovner](#)

Researchers in Israel have devised a novel strategy for signal amplification, the method commonly used to improve the sensitivity of diagnostic tests (*J. Am. Chem. Soc.*, DOI: 10.1021/ja903032t). The approach reported by [Doron Shabat](#) and Eran Sella of Tel Aviv University is analogous to the workhorse polymerase chain reaction (PCR) immunoassay, in which a minute quantity of DNA is exponentially replicated in order to detect an analyte. Last year, Northwestern University's [Chad A. Mirkin](#) and Hyo Jae Yoon developed the first exponential signal amplification technique that isn't based on PCR ([C&EN, Aug. 18, 2008, page 12](#)). Shabat and Sella have now developed the first non-PCR exponential amplification method for aqueous systems. The method relies on a modular, branched molecule known as a dendron that disassembles when it reacts with a target analyte. The disassembly sets off a chain reaction in which the fragments serve to disassemble the remaining dendrons. One of the fragments turns the solution yellow, signaling the presence of the analyte. Because the new probe is modular, a variety of analytes could potentially be detected by incorporating alternative moieties in the dendrons.

Chemical & Engineering News

ISSN 0009-2347

Copyright © 2009 American Chemical Society