Capillary Electrophoresis of Dendrimer-Related Medical Nanodevices

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1 INTRODUCTION

Dendrimers are a new class of highly branched, monodispersed, and synthetic macromolecules with well-defined composition and architecture (1). The tailored core, interior structure, surface groups, and generation-dependent geometric properties of dendrimers make them a quite unique material for a range of applications in catalysis (2), sensors (3–5), optics (6), electronics (7,8), environmental remediation (9–11), and drug delivery (12–14). Since the pioneering work of the Tomalia, Newkome, and Vogtle groups in the 1980s (15–18), a surge of interest has been experienced in the synthesis and applications of dendrimers (1,19). Various types of dendrimers have been synthesized, including poly(amidoamine) dendrimers (Starburst PAMAMs), poly(propyleneimine) dendrimers (Astramol, PPI), the Newkome type cascade (ZCascade: methane (4):(3-oxo-6-oxa-2-azaheptylidyne):(propanoic acids)) dendrimers, the Frechet-type polyether dendrimers (20), the melamine

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