

PNA - Self Assembled peptide nanostructures for OLED / Security applications (Ramot)**code:** 2-2013-569[Ehud GAZIT](#), T.A.U Tel Aviv University, Life Sciences, School of Molecular Cell Biology & Biotechnology**Technology**

We developed nanostructures based on Peptide-Nucleic Acid (PNA) derivatives which show highly promising performance characteristics. The unique electroluminescence/photoluminescence materials can be used as emissive materials in manufacturing Organic Light-Emitting Diodes (OLED) with high emission efficiencies, tunable colors, and improved charge-transport and film-forming properties.

The Need

Significant progress has been made over the past decade in producing advanced OLED technologies (e.g. portable device displays). There is much room for improvement, however, with respect to efficiency and lifetime. In particular, the exploration for low-cost, highly efficient, and stable blue-light emitting compounds has dominated research in the past few years.

Advantages of PNA OLEDs over alternatives include ease of synthesis, oxidative stability, being ecofriendly,

full spectrum support (including blue color), and high quantum yield.

Potential Application

Electroluminescence devices - Emitting layers in OLED with full-color display in devices such as television screens, computer displays, and portable electronics such as mobile phones.

Stage of Development

We designed and synthesized new building blocks that allow for full spectrum realization of organic light emitting technology. We fully master the synthesis, assembly of structures, and physical characterization of light emitting entities. We are now focusing our efforts to achieve patterning and optimization of deposition on solid surfaces, to be followed by the development of a working prototype to demonstrate a proof of concept for the new bio-inspired technology.

Patents

US Provisional Patent filed

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