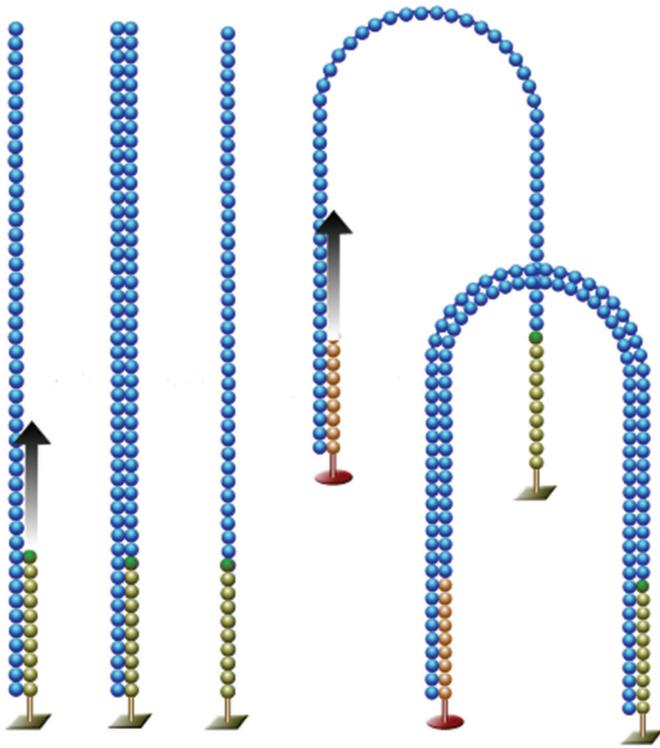


MegaPlex PCR: Simple Massively Multiplexed PCR, designed for low cost and automation

- 
- **Simple and inexpensive**
 - **Automatable**
 - **Clean and efficient**

Challenge

- Genetic analysis often requires the amplification of multiple specific regions from small amounts of DNA, but existing technologies are inefficient, non-uniform and have a limited target scope.
- Ideally a multiplexed PCR method would be simple, inexpensive, automatable, generate no false products and have uniform efficiency across a wide range of targets.
- Solution-phase approaches are challenged by high reagent cost, non-uniform target amplification, high artifact levels, and a limited target scope per assay design.
- Standard surface-based approaches provide a number of advantages, but suffer from extreme inefficiency.
- Droplet-based approaches require expensive specialized instruments, and suffer from poor efficiency and post-amplification purification challenges.



MegaPlex PCR: Simple Massively Multiplexed PCR, designed for low cost and automation

Solution

MegaPlex PCR has been developed to overcome the above limitations by combining surface-phase and solution-phase reactions. It is:

Simple and inexpensive: minimal requirement for specialist equipment.

Automatable: incorporates a seeding step via a unique low cost, highly-effective, surface-based reaction with the uniformity and efficiency of a solution-phase reaction to mass amplify the desired product.

Clean and efficient: wide and diverse target range, diverse target scope, minimal artifacts and simply purified final product.

- The method therefore combines the strengths of solution and surface phase methods and avoids the unnecessary complexities of droplet based approaches.
- Overall efficiency and specificity per target equates to that of single-plex PCR.
- The reaction principle is fully compatible with automation systems that use micro-titer plates incorporating planar micro-arrays or immobilized bead arrays of pairs of oligonucleotide primers.

Market

The main application for the MegaPlex technology is in medium scale genomic analysis (such as targeted Next Generation Sequencing, high-plex genotyping, and sample identification/fingerprinting) in areas such as biomedical research, clinical diagnostics, agricultural/livestock quality control, and environmental monitoring. These are all large markets, for example the in vitro diagnostics market is expected to reach \$16.38Bn globally, with rapid growth between 2013 to 2023 (<http://www.reportlinker.com/p0578540/In-Vitro-Diagnostics-World-Market-Outlook-2013-2023.html>), with molecular diagnostics already representing 18% of the >\$10Bn IVD market in Europe alone in 2014 (<http://www.prlog.org/10944132-molecular-diagnostics-is-the-fastest-growing-segment-in-the-in-vitro-diagnostics-market.html>).

IP status

The patent is granted in Europe and the US and is derived from PCT/GB2008/002273.

Are you a company supplying medical and research devices and protocols into life science markets, looking for an investment opportunity?

Please contact:

Dr. Sahar Sabetnia

Senior Licensing & Commercialisation Manager

e: ss920@le.ac.uk t: +44 (0) 116 229 7547

Research and Enterprise Division, University of Leicester,
University Road, Leicester, LE1 7RH, UK