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Paving the Way for Future Emerging DNA-based Technologies: Computer-Aided Design and Manufacturing of DNA libraries

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Deliverable name: Prototype DNA editor that monitors accuracy of self operation

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¹ As specified in Annex I

² i.e. name of the person(s) responsible for the preparation of the document

³ Short name of partner(s) responsible for the deliverable

⁴ The Technical Annex of the project provides a list of deliverables to be submitted, with the following classification level:

Pub - Public document; No restrictions on access; may be given freely to any interested party or published openly on the web, provided the author and source are mentioned and the content is not altered.

Rest - Restricted circulation list (including Commission Project Officer). This circulation list will be designated in agreement with the source project. May not be given to persons or bodies not listed.

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⁵ **R (Report)**: the deliverables consists in a document reporting the results of interest.

P (Prototype): the deliverable is actually consisting in a physical prototype, whose location and functionalities are described in the submitted document (however, the actual deliverable must be available for inspection and/or audit in the indicated place)

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⁶ Two digits separated by a dot:

The first digit is 0 for draft, 1 for project approved document, 2 or more for further revisions (e.g. in case of non acceptance by the Commission) requiring explicit approval by the project itself;

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Abstract

After two years of work developing CADMAD technology we are ready for editing of partner DNA libraries. The following deliverable is a prototype DNA editor that can perform DNA editing projects and additionally execute self monitoring operations to gauge its accuracy. We deliver this accomplishment both on a liquid handling robot and on a microfluidic electro-wetting cartridge. The prototypes will be delivered through two full demonstrations to reviewers and CADMAD partners during the review meeting on the 21st of March.

Keywords⁷:

Prototype, demonstration, robot, electro-wetting device

Introduction

a. Aim / Objectives

To demonstrate the robotic and Microfluidic prototype DNA editors

b. State of the Art

We know of no automated and fully integrated DNA editing systems in the art

c. Innovation

The prototype is a significant step towards establishing off-the-shelf DNA editors

2. Implementation

Two independent programs will run, one on the robotic liquid handling robot and one on ALL's electro-wetting based Microfluidic device. Both programs will demonstrate real scripts that we use in DNA editing. The robot will run a program for self monitoring and the Microfluidic device will run a CPA DNA editing program.

3. Results

Will be presented in the demonstration

⁷ Keywords that would serve as search label for information retrieval