

## Project Information ?

1R21HG003977-01

DESCRIPTION	DETAILS	RESULTS	HISTORY	SUBPROJECTS																											
<b>Project Number:</b> 1R21HG003977-01 <b>Title:</b> EVOLVING NOVEL POLYMERASES FOR GENOME SEQUENCING		<b>Contact PI / Project Leader:</b> ROMESBERG, FLOYD E. <b>Awardee Organization:</b> SCRIPPS RESEARCH INSTITUTE																													
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<b>Project Terms:</b> bacterial virus; biotin; directed evolution; DNA; DNA directed DNA polymerase; fluorescent dye /probe; genome; ionophores																															
<b>Contact PI Information:</b> <b>Name:</b> ROMESBERG, FLOYD E. <b>Email:</b> <a href="#">Click to view contact PI email address</a> <b>Title:</b> PROFESSOR		<b>Program Official Information:</b> <b>Name:</b> SCHLOSS, JEFFERY <b>Email:</b> <a href="#">Click to view PO email address</a> <b>Other PI Information:</b> Not Applicable																													
<b>Organization:</b> <b>Name:</b> SCRIPPS RESEARCH INSTITUTE <b>City:</b> LA JOLLA Country: UNITED STATES (US)		<b>Department / Educational Institution Type:</b> Unavailable Unavailable		<b>Congressional District:</b> State Code: CA District: 53																											
<b>Other Information:</b> <b>FOA:</b> RFA-HG-04-002 <b>Study Section:</b> Special Emphasis Panel (ZRG1-GGG-J (10)B) <b>Fiscal Year:</b> 2006 <b>Award Notice Date:</b> 18-MAY-2006 <b>DUNS Number:</b> 781613492 <b>Project Start Date:</b> 19-MAY-2006 <b>Budget Start Date:</b> 19-MAY-2006 <b>CFDA Code:</b> 172 <b>Project End Date:</b> 30-APR-2008 <b>Budget End Date:</b> 30-APR-2007																															
<b>Administering Institutes or Centers:</b> NATIONAL HUMAN GENOME RESEARCH INSTITUTE																															
<b>Project Funding Information for 2006:</b> <b>Total Funding:</b> \$278,850																															
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## Project Information ?

1R21HG003977-01

DESCRIPTION DETAILS RESULTS HISTORY SUBPROJECTS

Project Number: 1R21HG003977-01

Contact PI / Project Leader: ROMESBERG, FLOYD E.

Title: EVOLVING NOVEL POLYMERASES FOR GENOME SEQUENCING

Awardee Organization: SCRIPPS RESEARCH INSTITUTE

## Abstract Text:

DESCRIPTION (provided by applicant): There is great incentive for developing low cost technologies for sequencing genomes. While significant advances have been made in conventional sequencing methods, the reductions in cost and time required to make genome sequencing more feasible require the development of new methodologies. Indeed many new and promising methods are under development. However, these new approaches are generally limited by the inability of DNA polymerases to synthesize DNA with modified deoxynucleotide triphosphates (dNTPs). We propose to use our recently developed activity-based selection system to evolve DNA polymerases that efficiently recognize these modified dNTPs, and thus overcome one of the most significant barriers to the development of the novel sequencing methods. The selection system is based on the co-display on phage of DNA polymerase libraries and their DNA substrates, such that mutants that recognize the modified dNTPs covalently attach a biotin-dUTP, allowing for their selective isolation. In addition to the selections, various modern gene shuffling approaches are proposed to generate polymerase diversity. The Specific Aims of the proposal are: Specific Aim 1: Evolve DNA polymerases that efficiently synthesize DNA using fluorophore-labeled dNTPs to enable novel synthesis-by-sequencing methodologies. Specific Aim 2: Evolve polymerases that efficiently incorporate reversibly fluorophore tagged dNTPs with 3'-O-allyl protecting groups and then continue synthesis after double deprotection. Specific Aim 3: Collaborate to evaluate evolved polymerases in actual sequencing applications. The evolution of polymerases better suited for sequencing applications, and their evaluation in the actual sequencing methodologies, promises to dramatically facilitate the development of the methods and help make genome sequencing more commonplace.

## Project Terms:

bacterial virus; biotin; directed evolution; DNA; DNA directed DNA polymerase; fluorescent dye /probe; genome; ionophores

## Contact PI Information:

## Program Official Information:

## Other PI Information:

Name: ROMESBERG, FLOYD E.

Name: SCHLOSS, JEFFERY

Not Applicable

Email: [Click to view contact PI email address](#)Email: [Click to view PO email address](#)

Title: PROFESSOR

## Organization:

## Department / Educational Institution Type:

## Congressional District:

Name: SCRIPPS RESEARCH INSTITUTE

Unavailable

State Code: CA

City: LA JOLLA Country: UNITED STATES (US)

Unavailable

District: 53

## Other Information:

FOA: RFA-HG-04-002

DUNS Number: 781613492

CFDA Code: 172

Study Section: Special Emphasis Panel (ZRG1-GGG-J (10)B)

Project Start Date: 19-MAY-2006

Project End Date: 30-APR-2008

Fiscal Year: 2006 Award Notice Date: 18-MAY-2006

Budget Start Date: 19-MAY-2006

Budget End Date: 30-APR-2007

## Administering Institutes or Centers:

NATIONAL HUMAN GENOME RESEARCH INSTITUTE

## Project Funding Information for 2006:

Total Funding: \$278,850

Year	Funding IC	FY Total Cost by IC
2006	NATIONAL HUMAN GENOME RESEARCH INSTITUTE	\$278,850

## History:

Project Number	Sub #	Project Title	Contact Principal Investigator	Organization	FY	Admin IC	Funding IC	FY Total Cost by IC
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Exhibit: 2103

Witness: Romesberg

Date: 10-9-07

Subprojects:							
Project Number	Sub #	Project Title	Contact Principal Investigator	Organization	FY	Admin IC	FY Total Cost by IC
No Subprojects information available for 1R21HG003977-01							

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