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**UMDNJ**  
UNIVERSITY OF MEDICINE &  
DENTISTRY OF NEW JERSEY

For Legal Review

**CONTRACT APPROVAL FORM**

Date: 7/24/09

RECEIVED

JUL 29 2009

Vendor Name: SEA Wright

UMDNJ  
Office of Legal Management

Requisition#: R 0184177

Contract#: C 10-091

Bid/Waiver#: \_\_\_\_\_

MY Buyer JMT

Comments: 454 Titanium Sequencing  
8/2/2010

Olivera Embute sign  
MD 7/29/09



## Quotation for Services: 454 Titanium Sequencing

Nataliya  
balashnv@umdnj.edu  
973-972-9764  
UMDNJ

Dr. Nataliya,

Thank you for your interest in SeqWright's **454 Titanium DNA Sequencing Services**. Should you choose to use our services, please sign the attached quotation and submit it along with your sample(s).

SeqWright's 454 Titanium Sequencing Services generate approximately 500 Megabases of long-read data which is capable of handling projects from whole-genome *de novo* sequencing to methylation analysis. Utilizing the latest innovations and titanium chemistry, our 454 Titanium services generate more than a million Sanger-like reads (average 400bp) in a single run, making it extremely useful for expression analysis and ChIP projects as well. Given the volume of data which this service can generate, we offer partial runs down to 1/16 in order to meet the needs of smaller projects. Additionally, SeqWright can run up to 12 samples simultaneously through a bar-coding process which utilizes Multiple Identifier (MID) kits. With a combination of partial runs and bar-coding, a single run can be divided into as many as sixteen segments, allowing simultaneous analysis of up to 192 samples.

As an Authorized NimbleGen Capture Array Service Provider, SeqWright can capture and enrich up to 30 Megabases of client-specified genomic DNA, or an entire Human Exome, prior to library preparation. The combination of genomic enrichment and next generation sequencing capabilities enable SeqWright to provide rapid, cost effective targeted resequencing projects on a scale never before possible.

The 454 System supports a wide range of applications. These include whole genome *de novo* sequencing of a variety of genomes (virus, bacteria, fungus, BACs, higher eukaryotes). Additional sequencing applications include: small and micro RNA sequencing, SAGE/CAGE, expression/transcriptome/degradome analysis, and metagenomics. Ultra-deep targeted sequencing applications include: medical resequencing, population biology, HIV/HepC, and oncology.

SeqWright has over 15-years of experience providing custom contract genomic services and guarantees 100% satisfaction with your results. Furthermore, our laboratory is compliant with 21 CFR 58 (GLP) and 21 CFR 11 (Electronic Signatures) and has implemented elements of 21 CFR 210/211 (cGMP) including OOS. Our laboratory has also been CLIA certified for handling patient sample.

#### **Service packages may be customized to include:**

- Assembly and Annotation of Genome
- Gap filling with Sanger sequencing
- SNP and IN/DEL identification
- Custom Bioinformatics

#### **Related (optional) Services Include:**

- Shotgun Library Construction/Sequence Skimming
- SAGE sequencing and analysis
- SNP discovery and analysis
- SOLiD sequencing

Should you have any questions regarding the content provided in this quotation, please feel free to contact me at 1.800.720.GENE (4363) or at [sales@seqwright.com](mailto:sales@seqwright.com).

Sincerely,

Philip Bocock, Ph.D.  
Sales Representative

\*\* Information present above is intended to be a general overview of this requested service and does not have any impact on the study proposal, pricing, and terms provided in the subsequent pages.

Date: 7/7/2009

<p>Nataliya balashnv@umdnj.edu 973-972-9764 UMDNJ</p>	<p><b>Quotation #: 07-09-109</b></p> <p>Please include this number on your Project Description Form.</p> <p>Quotation Expiration Date: 08-09</p>
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## I. Study Scope

Client requires a quotation for the following study type:

- Fragment Library construction and 454 Sequencing with GS XLR70 (Titanium)
- 3 MB Gram negative bacterium *Kingella kingae*
- SeqWright will utilize ¼ of 454 Titanium plate and generate 20-30x coverage

## II. Generalized Project Description and Methods

SeqWright will perform the following tasks for fragment library, based on the desired application for client provided materials:

- **Sample Quality Assessment**
  - Spectrophotometric Measurement
  - Agarose Gel Analysis
- **Library preparation(Fragment)**
  - Fragmentation (300-500bp)
  - End repair
  - Adaptor ligation (5'-biotin tag)
  - Single stranded template Library Isolation
- **Library preparation (Paired-End)**
  - Fragmentation (shear to 3kb, 8kb or 20kb)
  - Adaptor ligation (5' and 3' tags) and circularization
  - Random cleavage
- **emPCR**
  - Library beads emulsified with amplification reagents in oil water mix
  - Clonal amplification
- **Sequencing**
  - Layer of library beads onto PicoTiterPlate™
  - Loading of plate onto 454 sequencer
  - Data collection
- **Data assembly**
  - Newbler™ Assembler

## III. Materials Required

- TESTING SAMPLES:
  - 1) DNA (10ug): non-degraded and free of particulate matter, double-stranded DNA > 70 bp; OD<sub>260/280</sub> > 1.8, minimum concentration 50ng/uL in TE
- IMPORTANT: A signed copy of the quote and a completed Project Description Form must be submitted to SeqWright at the time of the order.

## IV. Pricing Schedule and Turn-around Time



# Quotation for Services: 454 Titanium Sequencing

Services	PN #	Quantity	Unit Price	Subtotal
Fragment Library Construction and ePCR	1055	1	\$3,000.00	\$3,000.00
454 Data: ¼ plate on 454 Titanium(60- 110MB)	1025	1	\$8,000.00	\$8,000.00
Special Discount			-25%	-\$2,750.00
<b>ESTIMATED PROJECT COST:</b>				<b>\$8,250.00</b>

Estimated Turn-around Time: 1-2 weeks (for partial runs, turn-around time depends on availability of other samples to combine with for full run)

## V. Deliverables

Upon completion of this study, SeqWright will provide the following materials and results:

- All generated data will be compiled and delivered as FASTA format (supplied on a USB drive)
- Auto Newbler Assembled data as FASTA format with contigs will be delivered to client

## VI. Special Requirements

The following requirements must be met in addition to Section III, Materials Required, and Section VIII, Terms & Conditions:

- None

## VII. Repeat Policy

SeqWright has been trained and certified by 454 Life Sciences to provide sequencing services on the GS FLX Titanium platform. Materials Required. Upon receipt of Client sample(s), SeqWright will perform a quality check to determine if the sample(s) meets our material requirements. If the sample(s) does not meet the material requirements stated in section III, SeqWright will contact the client to determine if it is possible for replacement samples to be provided or if the Client wishes to proceed despite samples quality being less than satisfactory. If the Client wishes to proceed despite poor sample quality, SeqWright will perform the 454 run with no guarantees as to the quality or quantity of data which will be generated and no repeat will be performed. Furthermore, if the client provides their own genomic library, SeqWright will not be able to guarantee its quality, and therefore no repeats will be performed. If the samples provided meet SeqWright's material requirements but, the run quality is less than satisfactory, SeqWright will make every reasonable effort to determine the cause of the problem and if it is determined that the error was the fault of SeqWright, and not due to a problem with the reagents or the sample, a repeat of the service will be provided at no cost to the Client.

For each full plate GS FLX Titanium™ run, SeqWright routinely obtains 360-560 MB of sequence data (approximately 60-110 MB sequence data per ¼ plate run). SeqWright guarantees delivery of 45 MB for each ¼ plate run, except cDNA library sequencing or Poly region sequencing.

## VIII. Terms & Conditions

This quotation must be signed by an authorized agent of the client prior to commencement of work. It is the sole responsibility of the client to review this quotation for completeness and accuracy. All materials and results which will be provided by SeqWright upon completion of the study have been defined in Section V, Deliverables. Should this proposal and study scope not align with the client's expectations, it is the client's responsibility to notify SeqWright *in writing* of any changes to this proposal prior to initiation of the project. SeqWright is only responsible for performing services as outlined in this quotation. Pricing and turnaround times provided in Section IV, Pricing Schedule and Turnaround Time, are estimates based on information provided by the client and are subject to change. SeqWright will invoice for all services and/or products provided which may increase or decrease the total estimated costs as outlined in this proposal. Additional services required to complete this project will incur additional charges. PCR and/or sequencing of GC-rich and/or difficult templates may also incur additional charges. A properly completed Project Description Form that includes a purchase order (PO) number or credit card number must be submitted with each project. **Projects exceeding \$10,000 require a 50% deposit. Projects from outside the**



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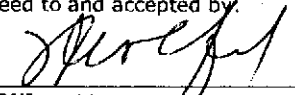
**United States require 100% payment upfront prior to initiating a study.)** Invoice terms are net 30 days.

This quotation is written explicitly for UMDNJ. The quotation, its contents, and any correspondence in regards to this quotation are strictly confidential. The information contained in this quote cannot be shared with any other parties without expressed written consent from SeqWright, Inc. SeqWright, Inc. reserves the right to pursue the fullest legal action against any violations of confidentiality and improper use or sharing of this quotation.

Submitted by:

Philip Bocock, Ph.D.  
SeqWright, Inc.

Agreed to and accepted by:

 8-3-09  
UMDNJ University of Medicine & Dentistry of NJ  
\*\*Requires an approval signature

Francis X. Colford  
Vice President for  
Finance and Treasurer

  
Approved As To Legal Form