CONFIDENTIAL PROPOSAL

PMC Advanced Technology

Prepared By:
Avomeen Analytical Services
4840 Venture Drive
Ann Arbor, MI 48108
Date: July 27, 2016

To: Alok Upadhyay, Ph.D.
Scientist
PMC Advanced Technology
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aupadhyay@pmc-at.com

From: Andrew Kolbert, Ph.D., M.T.M., President/Chief Technology Officer

Thank you for visiting Avomeen.com and your request for analysis. Avomeen specializes in deformulation and reformulation of industrial and consumer products such as inks, paints, cosmetics, pharmaceuticals, and additives. Our testing may include Avomeen's proprietary separations protocol along with testing on high-tech instrumentation such as Fourier Transform Infrared Spectrometer (FT-IR), Nuclear Magnetic Resonance Spectrometer (NMR), Energy Dispersive X-Ray Analysis (EDS), Gas Chromatograph/Mass Spectrometer (GC/MS), Liquid Chromatograph/Mass Spectrometer (LC/MS), Inductively Coupled Plasma (ICP), Scanning Electron Microscope (SEM), and a wide range of other analytical techniques and instrumentation as needed.

Avomeen Analytical Services is pleased to provide the following proposal. If you have any questions regarding the information, please do not hesitate to contact Dr. Andrew Kolbert at 800-930-5450 or on his cell phone at 734-864-6920.

Reaction Kinetics Investigation

We understand you have established a Sirtuin based in vitro assay using HPLC system in your lab. In this assay, one incubates the enzyme (Sirtuin) with its substrate (NAD+ and acetylated peptide) and carryout the reaction for specified period of time. After reaction completion, both substrate (acetylated peptide) and product (deacetylated peptide) are resolved on C18 column. We further understand you want to investigate the kinetics of this reaction which will involve the designed experiment below:

1: Determination of kinetic parameters such as Km, Vmax etc

A: Determine Km peptide, without 5% DMSO (in supplied buffer)
Saturating NAD, and vary [Ac-peptide] = 10, 25, 50, 100, 300, 500, 600, 1000 uM
Time: 5, 10, 20, 40, 80, 160 min

B: Determine Km peptide, with 5% DMSO
Saturating NAD, and vary [Ac-peptide] = 10, 25, 50, 100, 300, 500, 600, 1000 uM
Time: 5, 10, 20, 40, 80, 160 min

C: Determine Km peptide, with 5% DMSO and in presence of a specified modulator
Saturating NAD, and vary [Ac-peptide] = 10, 25, 50, 100, 300, 500, 600, 1000 uM
Time: 5, 10, 20, 40, 80, 160 min

Total sample above (A, B & C), to run on HPLC, will be 144

D: Determine the Km NAD, without 5% DMSO
Saturating Ac-peptide, and vary [NAD] = 100, 200, 400, 600, 800, 1200, 2000 uM
Time: 5, 10, 20, 40, 80, 160 min

E: Determine the Km NAD, with 5% DMSO
Saturating Ac-peptide, and vary [NAD] = 100, 200, 400, 600, 800, 1200, 2000 uM
Time: 5, 10, 20, 40, 80, 160 min

F: Determine the Km NAD, with 5% DMSO and in presence of a specified modulator
Saturating Ac-peptide, and vary [NAD] = 100, 200, 400, 600, 800, 1200, 2000 uM
Time: 5, 10, 20, 40, 80, 160 min

Total samples (D, E, and F) to run on HPLC: 126

The analytical method is summarized below:

HPLC Method:
Buffer A: (90% Water + 10% Acetonitrile) + 0.05% TFA
Buffer B: 100% Acetonitrile + 0.02% TFA

Time (min)	% A	% B	Flow (ml/min)	Pressure set (Bar)
1	100	0	1	200
21	49	51	1	200
31	0	100	1	200
36	100	0	1	200
41	100	0	1	200

Sample Preparation and Reaction Quench:
In a 50 uL reaction, the required amounts of substrates are added. We start the reaction by adding 5U of the enzyme (5U/reaction), and reaction will be carried out for specified period of time at 37C. The reaction will be stopped by addition of 1% TFA (final). We load 40 uL of this mix on a C18 column and resolve using the above HPLC program. The % product formation will be calculated by dividing product peak area by total area (% Product formed = product peak area/(product peak area + substrate peak area). The data will be represented in following format-

Product Rt (Min)	
Substrate Rt (Min)	
Product Area	
Substrate Area	
Total Area	
% product formed	
pmoles formed	

The experiments are to be performed in duplicate, so in total 540 preps and 540 HPLC assays will be conducted. The timeframe is expected to be 6 weeks in duration, provided all samples are received at the initiation of the project.

Analysis Cost & Timeframe:
Please choose from the following available options

☐**30 business days:** $250/run x duplicate analyses x 270 samples = $135,000

To Initiate Testing, please send us the following:

1. A signed formal quote proposal
2. **A completed sample submission form must accompany samples**
Located on the page directly following the signature page
Please note projects for which samples are submitted without the sample submission form or reference to the Quotation No. on the shipping label may be delayed.
3. 50% prepayment of the total estimated cost and a Purchase Order for the remaining amount
Accepted forms of payment include ACH transfer, wire transfer, check, and credit card
Avomeen reserves the right to issue invoices at milestones/deliverables
4. 1 ml per sample, if available
5. Any information available, including MSDS, if available

PROJECT ACCEPTANCE

Avomeen Analytical Services is pleased to submit this proposal. To begin this project as specified by the proposal above, please complete all applicable fields in the body of the proposal as well as below and return the proposal in its entirety to Avomeen at the following address or fax:

Avomeen Analytical Services
4840 Venture Drive
Ann Arbor, MI 48108
Fax: 800-930-5479

In doing so, this document will become a contract authorizing Avomeen Analytical Services to proceed with this project per the pricing, terms and conditions cited in this document. **The information in this proposal is valid for 30 days.**

Thank you for the opportunity to present this proposal for your review. If you have any questions, please feel free to contact me. We look forward to your response.

Sincerely,

Andrew Kolbert

Andrew Kolbert, Ph.D., M.T.M.
President/Chief Technology Officer
800-930-5450
andrew@avomeen.com

Agreed and Accepted for Client by:

_____
Name

_____ _____
Company Title

_____ _____
Signature Date

The project outlined in the accepted proposal will be performed under the direction of Avomeen's Chairman, Dr. Shri Thanedar. The proposal and information held within has been reviewed by:

Shri Thanedar

Shri Thanedar, Ph.D.
Chairman
800-930-5450
shri@avomeen.com

SAMPLE SUBMISSION

To begin this project as specified by the proposal above, complete the fields below and include a copy of the form with the samples to be analyzed. **Please note a copy of this completed form must be included in each shipment/box of samples submitted for testing.** Remit samples and completed form to the following address:

Avomeen Analytical Services
Attn: Sample Submission
4840 Venture Drive
Ann Arbor, MI 48108

SUBMITTER INFORMATION

Company Name: _____ Contact Name: _____

Street: _____ City: _____

State: _____ Zip: _____ Country: _____ Title: _____

Phone: _____ Contact Email: _____

SAMPLE INFORMATION

Total Number Submitted: _____ **Description:** _____

_____

_____

_____

_____

Please attach an additional sheet, if necessary

POST PROJECT SAMPLE HANDLING

Please note all samples will be retained on site for up to 30 days after completion of work. Please choose from the following available options for sample handling upon expiration of standard holding period:

☐ **Disposal**: Samples will be disposed of after holding period has ended
☐ **Storage**: Billed at $50 per month *Billing period to start 30 days after completion of project*
☐ **Return**: Samples will be shipped back to specified return address below
Shipping will be billed at $50 shipping and handling fee; for return of multiple or oversized samples or for return to locations outside of the US, fees will be determined on a case by case basis
OR client may provide their FedEx account number for return shipping charges: _____

Return shipping address *if applicable*

Company Name: _____ Contact Name: _____

Street: _____ City: _____

State: _____ Zip: _____ Country: _____ Phone: _____

Please note if a sample handling option is not selected, samples will be disposed of after holding period has ended

Please note projects for which samples are received without the sample submission form or reference to the Quotation No. on the shipping label may be delayed.

ACCOUNTS PAYABLE INFORMATION

Please provide accounts payable contact information and address for invoicing below:

Company Name: _____

Street: _____ City: _____

State: _____ Zip: _____ Country: _____

Contact Name: _____ Title: _____

Phone: _____ Contact Email: _____

CREDIT CARD PAYMENTS

Avomeen Analytical Services accepts all major credit cards including Visa, MasterCard, Discover, and American Express. Please complete the following authorization form:

I, _____, hereby authorize Avomeen Analytical Services to charge my credit card for the amounts invoiced.

Name (as appears on card): _____
Card Type: VISA ☐ MasterCard ☐ Discover ☐ AMEX ☐

Credit Card Number: _____

Expiration Date: _____/_____ **CVV Code*:** _____

Credit Card Billing Address

Street: _____

City: _____ **State:** _____ **Zip:** _____

Phone: _____ **Date:** _____

Email: _____

Cardholder's Signature: _____

Please note a 3% service fee applies to all US credit card transactions. A 5% service fee applies to all international credit card transactions.
Any remaining balance will be charged to the provided credit card upon completion of project unless otherwise noted.

As the credit card holder, I also authorize Avomeen Analytical Services to charge my credit card for future purchases approved by me. Your completion of this authorization form helps us to protect you, our valued customers, from credit card fraud. Avomeen Analytical Services will keep all information entered on this form strictly confidential.

**For Visa, MasterCard, and Discover cards, the card code is the last 3-digit number located on the back of your card on or above your signature line.*

ACH SUBMISSIONS

Avomeen Analytical Services accepts wire transfer and ACH payments for your convenience. Please note funds must be remitted in US dollars. Please contact Melissa Gransden at mgransden@avomeen.com for instruction.

INVOICE & W-9 REQUESTS

Avomeen Analytical Services provides copies of our current W-9 for accounting purposes upon request. Submit requests to Melissa Gransden at mgransden@avomeen.com. In the event that an invoice is required to initiate payment, submit requests to Melissa Gransden at mgransden@avomeen.com. A signed copy of the proposal must accompany all invoice requests.

TERMS & CONDITIONS

Avomeen Analytical Services (Avomeen) represents that the services shall be performed for Client within the limits mutually agreed to, and in a manner consistent with the level of care and skill ordinarily exercised by providers of similar services under similar circumstances. Avomeen reserves the right to subcontract services to other laboratories. If subcontracting is necessary, samples will be sent only to laboratories meeting Avomeen's qualification requirements. Projects will be completed in Avomeen's R&D laboratories unless otherwise specified. **This project is of research nature and does not require to be performed under cGMP guidelines.**

Avomeen strongly recommends review of the trademark and patent positions prior to the use of deformulation information in commercial production. Client acknowledges that Avomeen accepts no liability for the use of the analytical test results provided by Avomeen to Client. Client agrees to hold Avomeen harmless in all matters regarding Avomeen's testing of products. Client agrees that if Avomeen should be found liable for any losses or damages attributable to the Services in any respect, Avomeen's liability shall in no event exceed the amount of the fee paid by Client for such Services and Client's sole remedy at law or in equity shall be the right to recover up to such amount. Client acknowledges and agrees that in no event will Avomeen be liable for consequential or incidental damages or expenses, including, but not limited to lost profits.

If significant changes to the scope of a deliverable or project occur, Avomeen reserves the right to revise the project fee and/or invoice for work completed. In the event of project cancellation prior to 50% completion, Client will be charged for all costs incurred up to the time of cancellation which includes time (billed at a rate of $425 per hour) and materials plus 10% of the original total project cost. If the project is more than 50% complete at the time of cancellation, Client will be invoiced for the total project cost. Invoices will be issued once per month. Circumstances beyond our control may affect the ability to meet estimated timelines. If such an event occurs, the timeline will be revised to the next available non-rush timeframe and project cost will be revised accordingly. If such a delay arises, Avomeen will so inform Client.

Prices and related quotes are based on project descriptions provided to Avomeen by Client and detailed in such quote. Any change in test descriptions or process parameters provided by Client may require any price quoted to be adjusted and Avomeen reserves the right to adjust such price. In the event Avomeen issues conflicting oral and written quotes, the written quote shall control.

Avomeen requires payment of one half of fees prior to starting each project. The balance of the work will be invoiced monthly based on progress against a delivery schedule or upon receipt of deliverables. A finance charge of 1.5 percent per month may be imposed on any balance more than 30 days past due. Payment of Avomeen's invoices by Client shall not be delayed by, or contingent upon, approval or payment by Client's customer or any other third party.

To initiate the analysis described in this quote, please submit the signed quote, completed sample submission form, 50% pre-payment of the total estimated cost and a Purchase Order for the remaining amount. Accepted forms of payment include credit card, wire transfer, and check. Please note a 3% processing fee applies to all US credit card payments. International credit card payments incur a 5% processing fee. Wire transfer and credit card are the accepted form of payment for all international clients. Data or information provided to Avomeen by Client shall remain Client's property. Upon full payment to Avomeen for all services provided by Avomeen, data or information generated by Avomeen for Client shall become Client's property.

Costs for sourcing of raw materials, finished products, and samples for project will be passed on to Client at cost. The estimated project cost detailed in this quotation assumes up to 5% of the project cost will be allocated to the procurement of required materials. In the event that material costs exceed 5% of the total project value, Avomeen reserves the right to pass through such cost overages to the Client and Avomeen will advise the client a soon as possible if additional costs are expected. Client is responsible for expenses associated with shipping of trial formulations and additional materials to locations outside of the United States. **Please note all trial formulations and batches produced by Avomeen Analytical Services are for R&D purposes only and are not intended for human use.** Costs incurred while shipping hazardous materials to Client will be passed through to Client at cost.

There are no representations or warranties of any kind (including, without limitation, in advertising materials, quotations, proposals, brochures, or other descriptive literature) by Avomeen or any other person, express or implied, as to the condition or performance of any products, their merchantability, or fitness for a particular purpose, or otherwise. Avomeen assumes no responsibility or liability whatsoever for manufacturer's product specifications or the performance or adequacy of any design or specification provided to Avomeen by or on behalf of Client. No representative of Avomeen is authorized to give or make any other representation or warranty. The work performed by Avomeen often involves innovation, research, and development. At times the desired outcome may not be technically feasible, and therefore the desired outcome is not guaranteed. Either party may terminate this agreement at any time for any reason subject to the above paragraphs.

CONFIDENTIALITY

In the course of providing services to Client, Avomeen Analytical Services may acquire knowledge (both written and oral) regarding confidential affairs of Client, or have access to confidential or proprietary materials. Avomeen will take all reasonable measures to avoid disclosure and unauthorized use of Client's confidential information.

TEAM BIOGRAPHIES – PROJECT DIRECTORS

Shri Thanedar, Ph.D. – Chairman

Dr. Thanedar has been a pioneer in the development and implementation of deformulation technology. Shri has over twenty years of experience in litigation support, expert witness and testimony, failure analysis, material characterization, unknown identification, chemical analysis, plastics testing, rubber testing, polymer additives identification and quantitation. He has published dozens of prominent research publications and articles pertaining to polymers and organometallics.

Educ.: Ph.D. in Organometallics and Polymers, University of Akron; M.B.A., Fontbonne University

David W. Riggs, B.S., PE – CEO

Dave has broad industry experience including chemical manufacturing, product development of resins, coatings, polymers, heat transfer fluids and pharmaceutical pre-cursors with expertise in root cause analysis, competitive product and process analysis, pilot plant and scale-up, custom-toll manufacturing including engineering design. He has held positions with global chemical companies, building materials wholesalers as well as multiple analytical and product development laboratories.

Educ.: B.S in Chemical Engineering, Michigan State University, Licensed Professional Engineer

Andrew C. Kolbert, Ph.D., M.T.M. –President/Chief Technology Officer

Andrew has twenty years of experience executing and managing analytical and product development programs, both internally and in external organizations. His expertise is analytical chemistry in highly regulated areas including pharmaceutical development and testing, food contact migration studies, extractables and leachables studies, food additive and food contact notification testing and registration, and pesticide and insecticide testing under FIFRA. He has served as an expert witness to support litigation in the areas of pharmaceutical development and analytical testing. He has participated in FDA pre-notification conferences, FDA site audits, and trained FDA inspectors on analytical technology.

Educ.: Ph.D. in Chemical Physics, M.I.T.; M.T.M., Stevens Institute of Technology; Six Sigma Green Belt in Process Improvement, Honeywell

Jiangyin Bao, Ph.D. – Technical Director, Chemical R&D

Jiangyin has seven years of experience working in analytical chemistry research labs performing structure elucidation and quantitation of trace organic species in complex mixtures with LC-MS/MS, GC-MS, immunoassays, FTIR, and NMR in R&D, GLP and GMP environments. His expertise is developing analytical methods for research in highly regulated areas including pharmaceutical development and testing, consumer products deformulation, food contact migration studies, analysis of environment toxins such as herbicides, and pesticides.

Educ.: Ph.D. in Analytical Chemistry, Michigan State University; M.S. in Organic Chemistry, Tsinghua University

Ying Long, Ph.D. – Project Director, Chemical R&D

Ying has 12 years of experience working in analytical chemistry research labs performing structure elucidation of complex mixtures with LC-MS/MS, quantitation of trace organic species with LC-MS, GC-MS, and HPLC, and method development and validation in both R&D and GMP environments. Ying's group performs pharmaceutical deformulations to Q1/Q2 standards, extractables studies for pharmaceutical packaging, migration studies for food contact notifications, method development in difficult matrices, and complex analytical problem solving using HPLC, GC, GC-MS, LC-MS/MS, NMR, GPC, SPE, UV-Vis, FTIR, and Immunoassays.

Educ.: Ph.D. in Analytical Chemistry, State University of New York at Buffalo; M.S. in Analytical Chemistry, University of New Orleans

Derek Beauchamp, Ph.D. – Sr. Technical Director, Analytical Sciences

Derek is an expert in a wide breadth of characterization techniques and the respective instrumentation and software such as p-XRD, single crystal XRD, thermal analysis (DSC and TGA), Crystal 16, Crystalline, NMR, FT-IR, TOF-MS, DART-MS, UV-VIS, gas sorption, HPLC, LC-MS, particle size analysis, GC, SEM, and Raman Spectroscopy. He has years of experience with pre-formulation development of small molecules and their physical properties and has designed and demonstrated large scale crystallization processes. He has also led the development of crystallization processes for a number of late discovery pre-clinical candidates.

Educ.: Ph.D. in Supramolecular Inorganic Chemistry, University of Windsor

Neelam Varshney, M.S., M.S. – Sr. Technical Director, Pharmaceutical Sciences

Neelam has extensive experience in all CMC aspects of pharmaceutical products. Ranging from preclinical to post approval regulatory requirements, she has a wide breadth of experience in analytical development and validation of test methods, cleaning validation, product compliance for purity and safety, impurities identification and qualification, specification development and change control studies, stability monitoring programs, container-closure studies, extractable-leachable study designs, laboratory systems, protocol and report generation, 510(k), IND-NDA modules. She has spent 22 years in the pharmaceutical industry primarily applying ICH and other regulatory Guidances to build compliant systems. She has experience in characterization techniques and instrumentation and software such as XRD, thermal analysis (DSC and TGA), NMR, FT-IR, TOF-MS, ICP-MS, UV-VIS, HPLC, UPLC, LC-MS, particle size analysis, GC, SEM and Raman Spectroscopy.

Educ.: M.S. Bio chemistry; MS Business Management

Evan Boyst, B.S. – Sr. Technical Director, Product Development

Evan has experience in developing formulations of cosmetics, food and beverage, architectural coatings, developing specialized coatings for customer applications, and designing real world experiments to validate them. He has facilitated the product launch from R&D to production of several products. Evan also excels at scale up and troubleshooting manufacturing equipment. Evan has worked in the analytical field, gaining expertise in ICPMS, SEM with EDXA, GC-MS, HPLC, FTIR, NMR, LD particle sizing, UV-Vis, and XRD.

Educ.: B.S. in Chemistry, Eastern Michigan University