



YENEPOYA

(DEEMED TO BE UNIVERSITY)
Recognized under Sec 3(A) of the UGC Act 1956
Accredited by NAAC with 'A' Grade

Details of the Collaborative Activity

2018-19

Name of the collaborating institute: National Institute of Malaria Research (NIMR), Goa

Name of collaborating department: Yenepoya Research Center

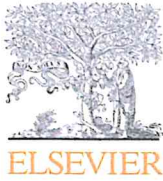
Activities:

Joint Research Projects and Publications

- Collaborative Research project titled “Development of urine based cost-effective and non-invasive rapid diagnostic test kit for *P. falciparum* and *P. vivax* infections PRC for DHR” was done by Dr. Keshav Prasad, YRC and Dr Ashwani Kumar, NIMR.
- Mohanty AK, Dey G, Kumar M, Sreenivasamurthy SK, Garg S, Prasad TK, Kumar A. Proteome data of female *Anopheles stephensi* antennae. *Data in Brief*. 2019 Jun 1;24:103911.
- Sreenivasamurthy SK, Dey G, Kumar M, Mohanty AK, Kumar A, Prasad TK. Quantitative proteome of midgut, Malpighian tubules, ovaries and fat body from sugar-fed adult *An. stephensi* mosquitoes. *Data in Brief*. 2018 Oct 1; 20:1861-6.
- Kumar M, Mohanty AK, Dey G, Sreenivasamurthy SK, Kumar A, Prasad K. Dataset on fat body proteome of *Anopheles stephensi* Liston. *Data in Brief*. 2019 Feb 1;22:1068-73.

ATTESTED

Dr. Jangadhara Somayaji K S
Registrar
Yenepoya (Deemed to be University)
University Road, Deralakatte
Mangalore 575 018, Karnataka.



Contents lists available at ScienceDirect

Data in brief

journal homepage: www.elsevier.com/locate/dib

Data Article

1
2
3 Q5 Proteome data of female *Anopheles stephensi*
4 antennae5 Q4 Ajeet Kumar Mohanty ^a, Gourav Dey ^b, Manish Kumar ^c,
6 Sreelakshmi K. Sreenivasamurthy ^b, Sandeep Garg ^d,
7 Q1 T.S. Keshava Prasad ^{e, **}, Ashwani Kumar ^{a, *}9 ^a ICMR – National Institute of Malaria Research, Field Unit, Campal, Panaji, Goa 403001, India10 ^b Institute of Bioinformatics, Discoverer Building, International Tech Park, Bangalore 560 066, India11 ^c Department of Immunology and Infectious Diseases, Harvard T.H. Chan School of Public Health, Boston, MA, USA12 ^d Department of Microbiology, Goa University, Taleigao Plateau, Goa Pin – 403206, India13 ^e Center for Systems Biology and Molecular Medicine, Yenepoya Research Center, Yenepoya University, Mangalore 575018, India

17 A R T I C L E I N F O

18 Article history:

19 Received 2 February 2019

20 Received in revised form 26 March 2019

21 Accepted 2 April 2019

22 Available online xxx

17 A B S T R A C T

18 Antennae of female *Anopheles stephensi* mosquitoes were dissected
19 and lysed with 1% SDS. Proteins were extracted using ultra soni-
20 cation and analyzed on high resolution mass spectrometer. Proteo-
21 mic data was analyzed using two search algorithms SEQUEST and
22 Mascot, resulting in the identification of 22,729 peptides corre-
23 sponding to 3262 proteins. These proteins were characterized using
24 different bioinformatics tools. VectorBase resource was used to
25 assign Gene Ontology (GO) terms. Using Biomart tool ortholog in-
26 formation was fetched from the VectorBase database. Raw mass
27 spectrometric data was deposited in ProteomeXchange Consortium
28 via PRIDE partner repository in the public dataset PXD001128. Pro-
29 teins involved in insecticide resistance and odorant binding were
30 the most abundant in the antennae. The proteins identified in this
31 study could be targeted for developing novel vector control strategy.32 © 2019 Published by Elsevier Inc. This is an open access article
33 under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).
34

35 * Corresponding author.

36 ** Corresponding author.

37 E-mail addresses: keshav@yenepoya.edu.in (T.S.K. Prasad), ashwani07@gmail.com (A. Kumar).38 <https://doi.org/10.1016/j.dib.2019.103911>39 2352-3409/© 2019 Published by Elsevier Inc. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).40 Please cite this article as: A.K. Mohanty et al., Proteome data of female *Anopheles stephensi* antennae, Data
41 in brief, <https://doi.org/10.1016/j.dib.2019.103911>

42 ATTESTED

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Dr.Gangadhar Somayaji K.S.
Registrar
Yenepoya Deemed to be University
University Road, Deralakatte
Mangalore- 575 018, Karnataka



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Data Article

Quantitative proteome of midgut, Malpighian tubules, ovaries and fat body from sugar-fed adult *An. stephensi* mosquitoes



Sreelakshmi K. Sreenivasamurthy^{a,b}, Gourav Dey^{a,b,c},
Manish Kumar^{a,b}, Ajeet Kumar Mohanty^d, Ashwani Kumar^{d,*},
T.S. Keshava Prasad^{a,c,**}

^a Institute of Bioinformatics, International Tech Park, Bangalore 560066, India

^b Manipal Academy of Higher Education, Manipal 576104, India

^c Center for Systems Biology and Molecular Medicine, Yenepoya Research Centre, Yenepoya (Deemed to be University), Mangalore 575018, India

^d ICMR-National Institute of Malaria Research, Field Station, Campal, Panaji, Goa 403001, India

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Article history:

Received 25 June 2018

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ABSTRACT

The data presented in this article is associated with the quantitative proteomic analysis of four mosquito tissues – midgut, Malpighian tubules, ovaries and fat body from female *Anopheles stephensi* mosquitoes. To identify the proteins that were expressed in a tissue-specific manner, the four mosquito tissues were labelled with iTRAQ labels and analyzed using a high-resolution mass spectrometer. Database searches of the 1,10,616 raw spectra from 23 peptide fractions resulted in the identification of 84,733 peptide spectrum matches corresponding to 16,278 peptides and 3372 proteins. Of these, 959 proteins were found to be differentially expressed across the tissues. Gene ontology-based bioinformatic analysis of the differentially expressed proteins are also provided in the article. The data in this article has been deposited in the (ProteomeXchange) Consortium via the PRIDE repository and can be accessed through the accession ID, PXD001128.

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* Corresponding author.

** Corresponding author at: Center for Systems Biology and Molecular Medicine, Yenepoya Research Centre, Yenepoya (Deemed to be University), Mangalore 575018, India.

E-mail addresses: ashwani07@gmail.com (A. Kumar), keshav@yenepoya.edu.in (T.S.K. Prasad).

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Dr. Gangadhara Somayaji K.S.
Registrar
Yenepoya (Deemed to be University)
University Road, Deralakatte
Mangalore- 575 018, Karnataka



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Data Article

Dataset on fat body proteome of *Anopheles stephensi* Liston



Manish Kumar^{a,b}, Ajeet Kumar Mohanty^c, Gourav Dey^{a,b},
Sreelakshmi K. Sreenivasamurthy^{a,b}, Ashwani Kumar^{c,*},
Keshava Prasad^{a,d,**}

^a Institute of Bioinformatics, International Technology Park, Bangalore 560066, Karnataka, India

^b Manipal Academy of Higher Education, Manipal 576104, Karnataka, India

^c ICMR-National Institute of Malaria Research, Field Station, Goa 403001, India

^d Center for Systems Biology and Molecular Medicine, Yenepoya Research Center, Yenepoya (Deemed to be University), University Road, Mangalore 575018, India

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ABSTRACT

Fat body from *Anopheles stephensi* female mosquitoes were dissected and processed for proteomic analysis. Both SDS-PAGE and basic Reverse Phase Liquid Chromatography-based fractionation strategies were used to achieve a broad coverage of protein identification. The fractionated peptides were then analyzed on a high-resolution mass spectrometer. Searching the raw data against the protein database of *An. stephensi* resulted in identification of 4535 proteins, which is, to our knowledge, the largest catalog of fat body proteome in any mosquito vector species reported so far. Bioinformatics analysis on these fat body proteins suggested the enrichment of biological processes including carbon and lipid metabolism, amino acid metabolism, signal peptide processing and oxidation-reduction. In addition, using proteogenomic approaches, 43 novel proteins were identified, which were not listed in the annotated gene annotations of *An. stephensi*. The data used in the

* Corresponding author.

** Corresponding author at: Center for Systems Biology and Molecular Medicine, Yenepoya Research Centre, Yenepoya (Deemed to be University), University Road, Mangalore 575018, India.

E-mail addresses: ashwani07@gmail.com (A. Kumar), keshav@yenepoya.edu.in (K. Prasad).

URL: <http://esbmm.yenepoya.edu.in/> (K. Prasad).

<https://doi.org/10.1016/j.dib.2019.01.016>

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Dr Gangadhara Somayaji K.S.
Registrar
Yenepoya Deemed to be University
University Road, Beralakatte
Mangalore 575018, Karnataka



MEMORANDUM OF UNDERSTANDING

Between

NATIONAL INSTITUTE OF MALARIA RESEARCH

Sector 8, Dwarka, New Delhi-110077, India

AND

**YU-IOB CENTER FOR SYSTEMS BIOLOGY AND
MOLECULAR MEDICINE,**

Yenepoya Research Center, Yenepoya University, Deralakatte,
Mangalore- 575 018, Karnataka, India.

ATTESTED 

Dr. Gangadhara Somayaji K S
Registrar
Yenepoya (Deemed to be University)
University Road, Deralakatte
Mangalore 575 018, Karnataka.

MEMORANDUM OF UNDERSTANDING

This agreement is entered into at Mangalore on this day the XX in the month of XX in the year two thousand and sixteen between

YU-IOB Center for Systems Biology and Molecular Medicine, Yenepoya Research Center, Yenepoya University, Deralakatte, Mangalore 575 018, Karnataka, India (hereinafter called 'CSBMM')

AND

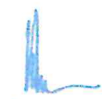
National Institute of Malaria Research, Sector 8, Dwarka, New Delhi-110077, India (hereinafter called 'NIMR')

WHEREAS CSBMM is an academic research center at Yenepoya University, Mangalore, engaged in the genomic, proteomic and metabolomic approaches to investigate diseases of human, pathogens and host pathogen interactions.

WHEREAS NIMR is a premier research centre specializing in areas of mosquito diversity and behavior, development of genetic and molecular markers for important malaria vectors and parasites, cytotaxonomic studies identifying major vectors as species complexes and monitoring of insecticide resistance among vectors, drug resistance in parasites, clinical evaluation of new antimalarials and other epidemiological studies.

Both the above parties held discussions at various times to enter into an agreement related to matters of mutual interest and decided to deduce their respective roles and points of agreement jointly hereunder:

The following are the conditions of the MOU


(A. Kumar)



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ATTESTED



Dr. Gangadhara Somayaji KS
Registrar
Yenepoya (Deemed to be University)
University Road, Deralakatte
Mangalore 575 018, Karnataka.

1. Both the parties decided to work closely on research projects pertaining to vector borne diseases including malaria, dengue, filariasis and chikungunya for a period of 6 years from the date of signing of this MOU. These research projects will be an attempt to enhance the knowledge in the fields of genomic, proteomic and metabolomic analysis of hosts, vectors and pathogens pertaining to vector-borne diseases.
2. Dr. Keshava Prasad and other scientists will represent the YU-IJOB CSBMM and Dr. Ashwani Kumar and other scientists will represent NIMR. They will supervise the above-mentioned research projects.
3. Both the parties will work for academic interest. In the event of the outcome of any intellectual property, both the institutes will share IPR as mutually decided upon. All participants from both organizations (*as specified by the representatives of both centers*) will be co-authors in research papers, patents, conference presentation and academic events that emanate from the proposed research projects.
4. As per the mutual agreement, following Animal Ethics Board approval relevant to selected research projects, NIMR will facilitate and extend; expertise, consultations, and specimens for analysis as appropriate.
5. NIMR will provide all the logistics and consumables for sample collection, storage and subsequent transport for analysis from the joint projects of CSBMM and NIMR.
6. CSBMM will provide the instrumentation time including mass spectrometers, consumables required for sample preparation, expertise in sample preparation, mass spectrometry, data analysis and data interpretation support.
7. NIMR and CSBMM scientists will develop grant proposals and put efforts to get joint research grants from national and international funding agencies..
8. These studies will not involve any type of radioactive material.


(A. Kumar)



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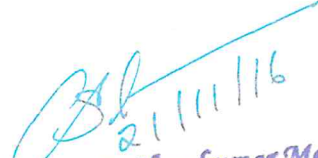
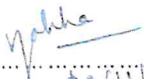
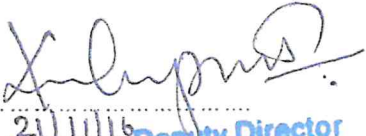
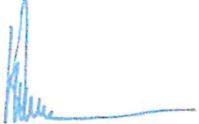
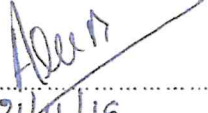







ATTESTED

Dr. Gangadhara Somayaji K S
Registrar
Yenepoya (Deemed to be University)

<p>Signature:  Date: 21/11/16 Dr. G. Shreekumar Menon Registrar Yenepoya University Mangaluru - 575 018 Yenepoya University, Mangalore - 575018, Karnataka, India</p>	<p>Signature:  Date: 10/11/16 Dr. Neena Valecha Director National Institute of Malaria Research Sector 8, Dwarka, New Delhi-110077, India</p>
<p>Signature:  Date: 21/11/16 Dr. T. S. Keshava Prasath Deputy Director Professor and Deputy Director YU-IOB Center for Systems Biology and Molecular Medicine Yenepoya University Mangalore - 575 018, India Yenepoya University Mangalore, Karnataka, India - 575018</p>	<p>Signature:  Date: 09/11/16 Dr. Ashwani Kumar Scientist E National Institute of Malaria Research Sector 8, Dwarka, New Delhi-110077, India</p>
<p>Signature:  Date: 21/11/16 Dr. Arun Bhagwath Professor and Deputy Director Yenepoya Research Center Yenepoya University Mangalore, Karnataka, India - 575018</p>	<p>Signature:  Date: 10/11/2016 Dr. Anup Anvikar / C. S. Nambodiri National Institute of Malaria Research Sector 8, Dwarka, New Delhi-110077, India</p>

ATTESTED



Dr. Gangadhara Somayaji K S
Registrar
Yenepoya (Deemed to be University)
University Road, Deralakatte
Mangalore 575 018, Karnataka.

Mangalore 575 018, Karnataka.