Tulane Health Sciences Research Days 2018
ABSTRACT SUBMISSION GUIDELINES

- Each presenter may serve as the **first author/submitting author** on only **one** abstract, which is expected to represent his or her own work, but may be **co-author** on additional abstracts.

- Students and trainees are eligible for one Health Sciences Research Days award, to be designated on the **Abstract Submission Form**, and may also indicate consideration for a Specialty Award if appropriate. Please see the following **List of Awards.**

- By submitting an abstract, you agree to **attend your designated poster session,** and to **have your abstract published** on the Tulane Health Sciences Research Days website. If you have intellectual property concerns, please let us know at researchdays@tulane.edu.

Instructions:

- Complete the **Abstract Submission Form.**
- Upload a PDF file of your abstract in the format below. Please include the first author's last name in the file name.
- The title should appear in **UPPER CASE LETTERS** in **bold face** Arial 11pt.
- List all authors using the format "Lastname <space> First and Middle Initials" (Smith JQ, Jones AB, etc.) Use an asterisk or multiple asterisks (*, **, ***) to denote different department/institution affiliations. *The first author's institution must be Tulane.*
- Please see the following ***Sample Abstract*** for guidance.

Body of Abstract:

- Statement of the scientific premise in 2 to 4 sentences
- Presentation of data, as needed
- Reconciliation of data with scientific premise in 2 to 4 sentences
- Conclusion in 1 to 2 sentences
- Provide any grant acknowledgments for research (i.e., NIH-AI-13028) at the end of the abstract.
- Use standard abbreviations. Place a special or unusual abbreviation in parentheses after the full word the first time it appears; thereafter, the abbreviation will suffice.

Poster Guidelines:

- Poster space is limited. Submit early to ensure acceptance.
- Posters should be no larger than ***4 feet*** **(height) by** ***6 feet*** **(width).** For help with poster design, format, and printing, please visit the Matas Library Poster Presentation Guide.
- Poster session assignments will be determined after the submission deadline. You will receive an email with your session time and poster number a few weeks before the event. Session Lists and Program of Events will be available at provost.tulane.edu/hsrd
- Posters must be secured with **VELCRO ONLY**. No push pins are allowed.

HEALTH SCIENCES RESEARCH DAYS 2018 AWARDS

A. Health Sciences Research Days Award for Excellence in Research and Presentation by a **Graduate Student**

B. Health Sciences Research Days Award for Excellence in Research and Presentation by a **Postdoctoral Fellow**

C. Dean of the School of Medicine Award for Excellence in Research and Presentation by a **Medical Student**

D. Dean of the School of Medicine Award for Excellence in Research and Presentation by a **Resident or Fellow**

E. Dean of the School of Public Health and Tropical Medicine Award for Excellence in Research and Presentation by a **Public Health Masters Student**

F. Dean of the School of Public Health and Tropical Medicine Award for Excellence in Research and Presentation by a **Public Health Doctoral Student**

G. Dean of the School of Science and Engineering Award for Excellence in Research and Presentation by a **Graduate Student**

H. Dean of the School of Science and Engineering Award for Excellence in Research and Presentation by an **Undergraduate Student**

SPECIALTY AWARDS

1. **Michael A. Gerber Prize for Research in Molecular and Cellular Biology** sponsored by the Dr. and Mrs. Michael A. Gerber Memorial Fund and the Department of Pathology and Laboratory Medicine

2. **Award for Cancer Research** sponsored by the Tulane Cancer Center

3. **Award for Research in Infectious Diseases** sponsored by the Tulane National Primate Research Center

4. **Award for Research in Stem Cell Research and Regenerative Medicine** sponsored by the Tulane Center for Stem Cell Research and Regenerative Medicine

5. **Award for Excellence in Research and Presentation by a 4th Year DeBakey Scholar** sponsored by the Dean of the School of Medicine

6. **Award for Research in Women's Health and Sex Differences** in Cardiovascular and Related Diseases sponsored by the Tulane BIRCWH Program

7. **Award for Research in Sustainable and Healthy Communities** sponsored by the ByWater Institute

8. **Award for Research in Neuroscience** Sponsored by the Tulane Brain Institute

MOLECULAR STRUCTURE OF NUCLEIC ACIDS: A STRUCTURE FOR DNA

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We wish to put forward a radically different structure for the salt of deoxyribose nucleic acid (DNA). This structure has two helical chains each coiled round the same axis. We have made the usual chemical assumptions, namely, that each chain consists of phosphate diester groups joining ß-D-deoxyribofuranose residues with 3',5' linkages. The two chains (but not their bases) are related by a dyad perpendicular to the fiber axis. Both chains follow right-handed helices, but owing to the dyad the sequences of the atoms in the two chains run in opposite directions. Each chain loosely resembles Furberg's model No. 1; that is, the bases are on the inside of the helix and the phosphates on the outside. The configuration of the sugar and the atoms near it is close to Furberg's 'standard configuration', the sugar being roughly perpendicular to the attached base. There is a residue on each chain every 3.4 A. in the *z*-direction. We have assumed an angle of 36° between adjacent residues in the same chain, so that the structure repeats after 10 residues on each chain, that is, after 34 A. The distance of a phosphorus atom from the fibre axis is 10 A. As the phosphates are on the outside, cations have easy access to them. The structure is an open one, and its water content is rather high. At lower water contents we would expect the bases to tilt so that the structure could become more compact. The novel feature of the structure is the manner in which the two chains are held together by the purine and pyrimidine bases. The planes of the bases are perpendicular to the fibre axis. They are joined together in pairs, a single base from one chain being hydrogen-bonded to a single base from the other chain, so that the two lie side by side with identical *z*-co-ordinates. One of the pair must be a purine and the other a pyrimidine for bonding to occur. The hydrogen bonds are made as follows: purine position 1 to pyrimidine position 1; purine position 6 to pyrimidine position 6. If it is assumed that the bases only occur in the structure in the most plausible tautomeric forms (that is, with the keto rather than the enol configurations) it is found that only specific pairs of bases can bond together. These pairs are: adenine (purine) with thymine (pyrimidine), and guanine (purine) with cytosine (pyrimidine). In other words, if an adenine forms one member of a pair, on either chain, then on these assumptions the other member must be thymine; similarly for guanine and cytosine. The sequence of bases on a single chain does not appear to be restricted in any way. However, if only specific pairs of bases can be formed, it follows that if the sequence of bases on one chain is given, then the sequence on the other chain is automatically determined.

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