

Segal's Law and the perils of foodborne pathogen detection within the American Gut Project

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Standards for Pathogen Detection for Biosurveillance
and Clinical Applications Workshop

NIST August 14–15, 2017

Citizen science and pathogen detection



The American Gut is one of the largest crowd sourced, citizen science projects in the country. We discover new information daily to shed light on the the connections between the human microbiome and health.

LEARN MORE ABOUT AMERICAN GUT

HOW IT WORKS

Now that you are a microbiome expert and know why the American Gut Project is important for discovering new information about our microbiome, we hope you'll be inspired to get involved. Here's how:

Once you make a contribution on Fundrazr, you'll receive your sample kit in the mail. Your sample kit will contain everything you need to collect your sample and mail it back to us. Check out [this video](#) to see how to participate in the project from start (contributing for your kit on Fundrazr) to finish (mailing your kit in). There are some important steps to follow before you collect your sample.

- First, you need to register your kit.
- Once you have done that, you'll have to select your sample type-human, pet, or environmental.
- If you choose a human sample, you'll digitally sign our consent form and take a diet and lifestyle survey. Then-you're ready to collect your sample!

With all of the possibilities, you might be wondering which body site you should sample, and how to sample your chosen site. The series of videos below (available on Vimeo from Shelley Schlender) shows you how to decide which body site to sample and how to collect your

BioSamples

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BioSamples > SAMEA3607968

Sample SAMEA3607968

Name	ERS915117
Release date	2017-08-05
Last updated	2017-08-05
Submission title	15823 Mixed species samples from ENA SRA
Submission identifier	GEN-ERS424627
Organism	human_gut_metagenome
Acne medication otc	false
Acne medication otc	false
Age cat	45.0
Age corrected	45.0
Age years	45.0
Alcohol consumption	false
Alcohol frequency	Never
Alcohol types beer/cider	false
Alcohol types red wine	false
Alcohol types sour beers	false
Alcohol types spirit/brand alcohol	false
Alcohol types unspecified	true
Alcohol types white wine	false
Allergic to I have no food allergies that I know of	false
Allergic to other	false
Allergic to peanuts	false
Height cm	165.0
Height units	centimeters
Host common name	human
Host subject id	4cf164ba4c253f769cf1a464c683179a
Host taxid	9606
Ibd	I do not have this condition
Lactose	true
Last travel	I have not been outside of my country
Latitude	39.7
Livingwith	No
Longitude	-104.8
Lung disease	I do not have this condition
Multivitamin	true
Nail biter	true
Non food allergies bee/sting	false
Non food allergies drug eg penicillin	false
Non food allergies pet dander	false
Non food allergies poison ivy/oak	false
Non food allergies sun	false
Non food allergies unspecified	true
Other supplement frequency	false
Physical specimen location	UCSDOM1
Physical specimen remaining	True
PSU	I do not have this condition
Pool frequency	Rarely (a few times/month)
Public	True
Race	African American
Required sample info status	completed
Sample type	Stool
Seasonal allergies	false
Sex	female

Objectives:

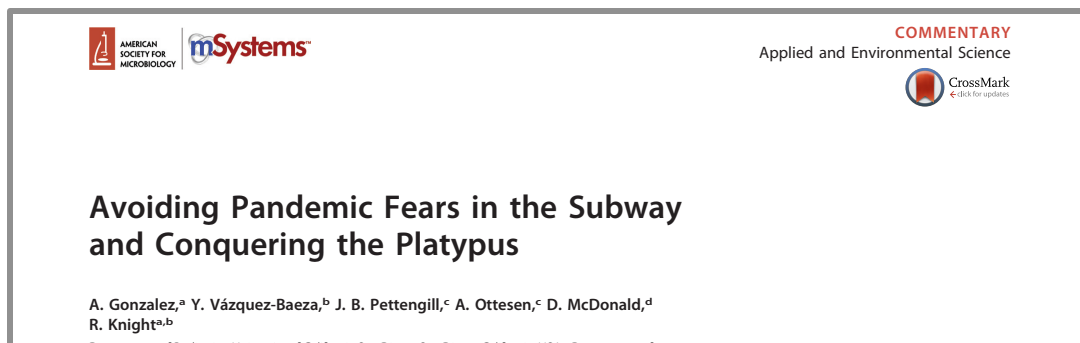
- AGP results suggest a surprising 14% and 2% of samples contained *Salmonella* and *Listeria*, respectively
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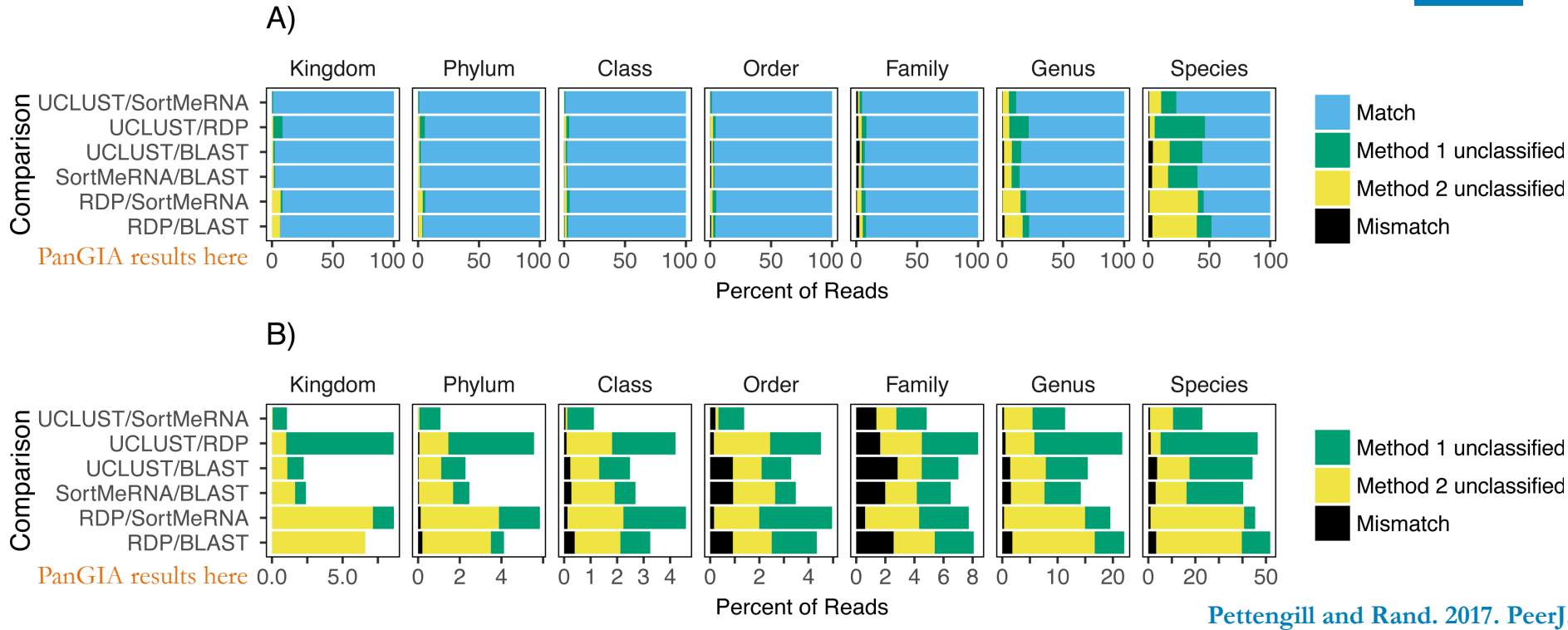
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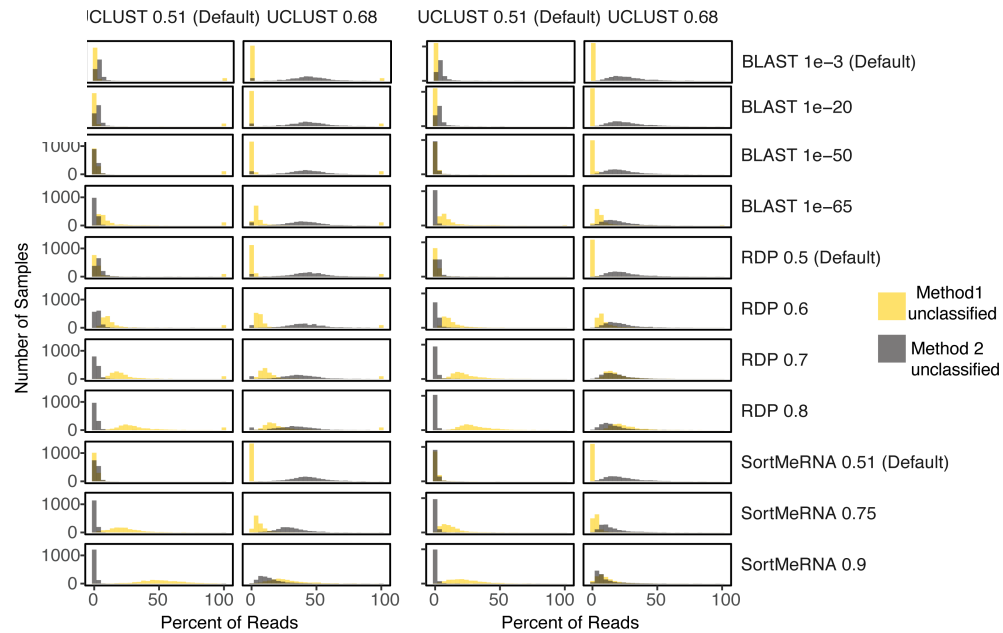
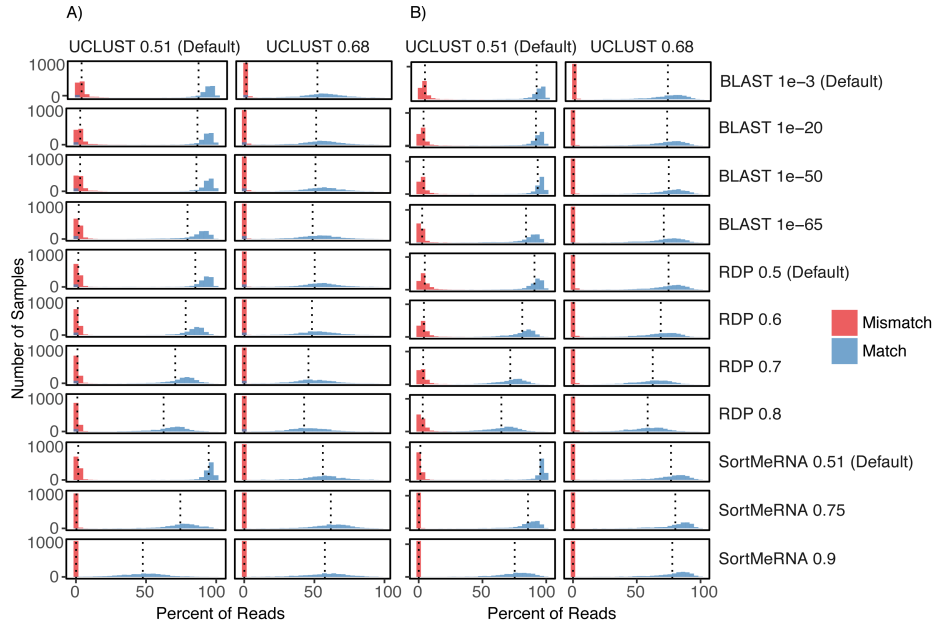
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- Decided to see how often different classification methods agreed (1,652 samples/48,312,131 reads)

Results:

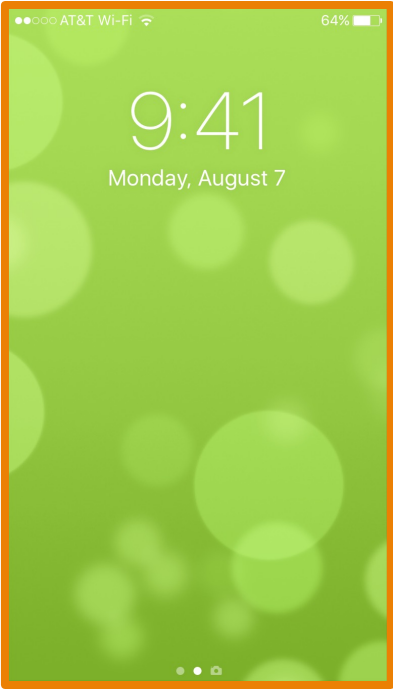


- **Methods differ – particularly in whether they classify a read.**
- **Important implications for identifying microbes associated with diseases/lifestyles (e.g., 16S rRNA and metagenome-wide association studies)**

Results: not an issue of parameter settings



Segal's law: a person with one watch (method) always knows what time it is; a person with two watches (methods) is never sure.



Acknowledgements:

- Hugh Rand
- American Gut Project

