

Combine Genetic, Molecular, Cellular and Statistical Analysis to Determine Disease Variations

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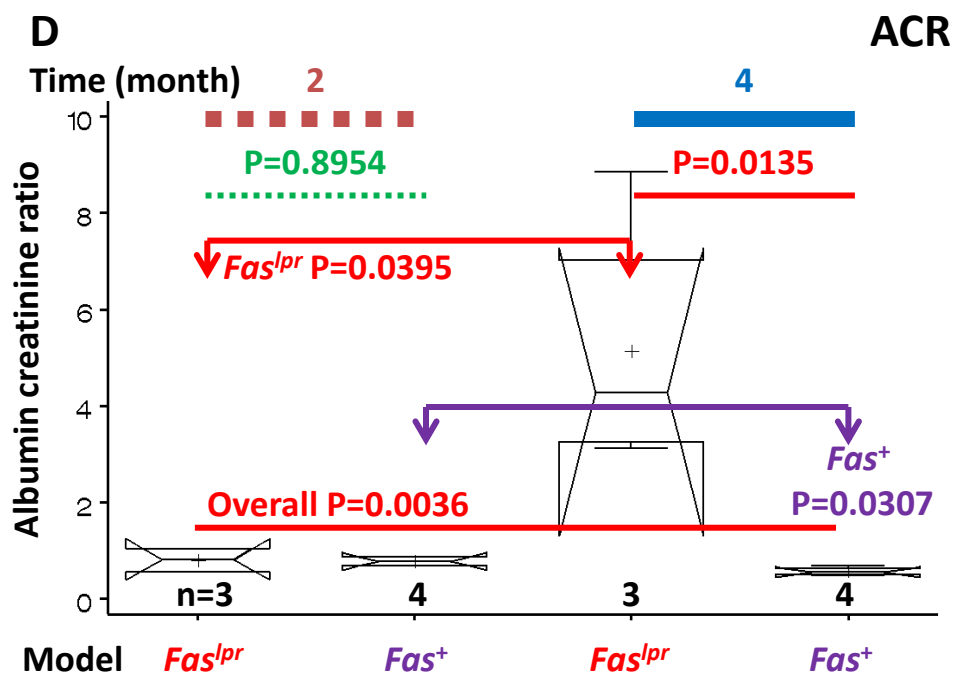
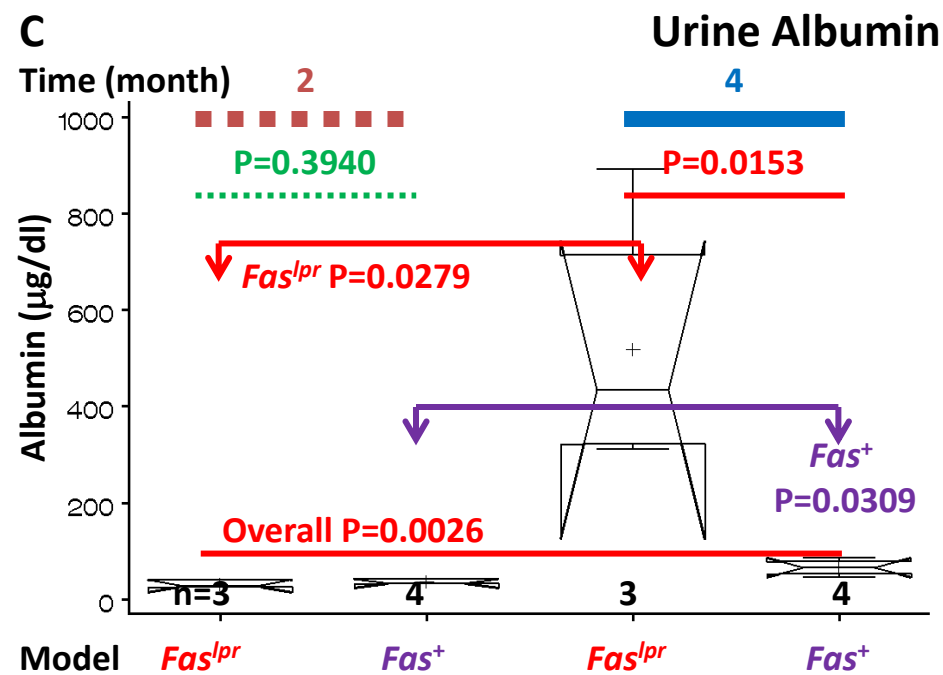
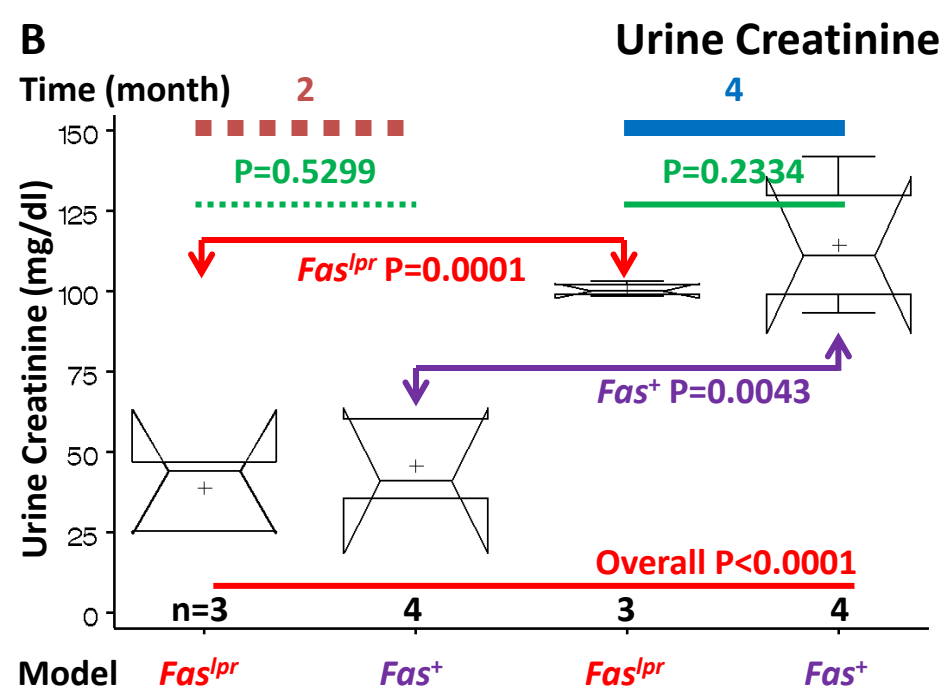
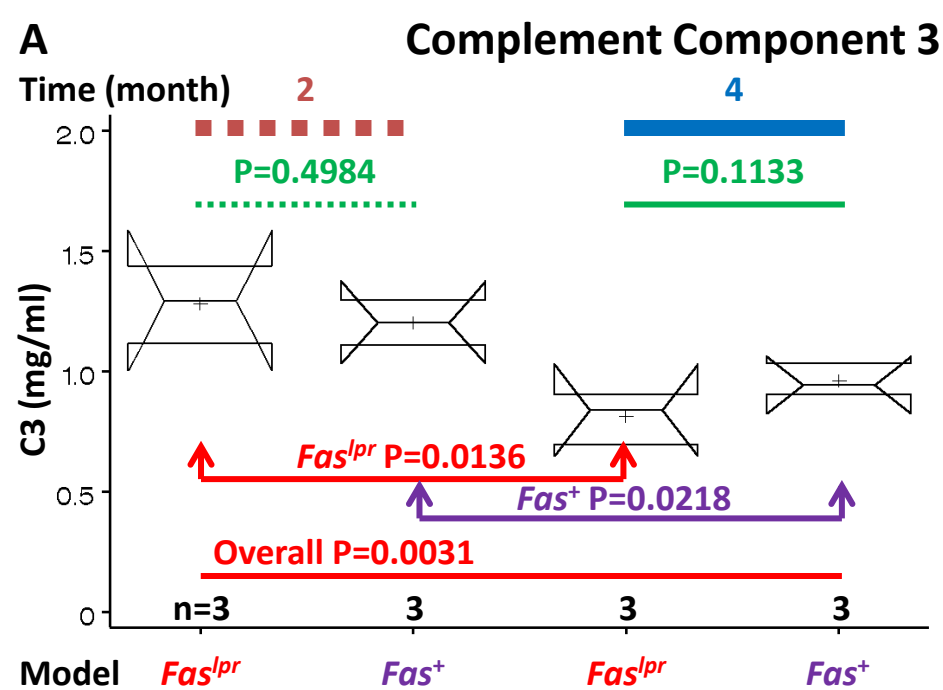
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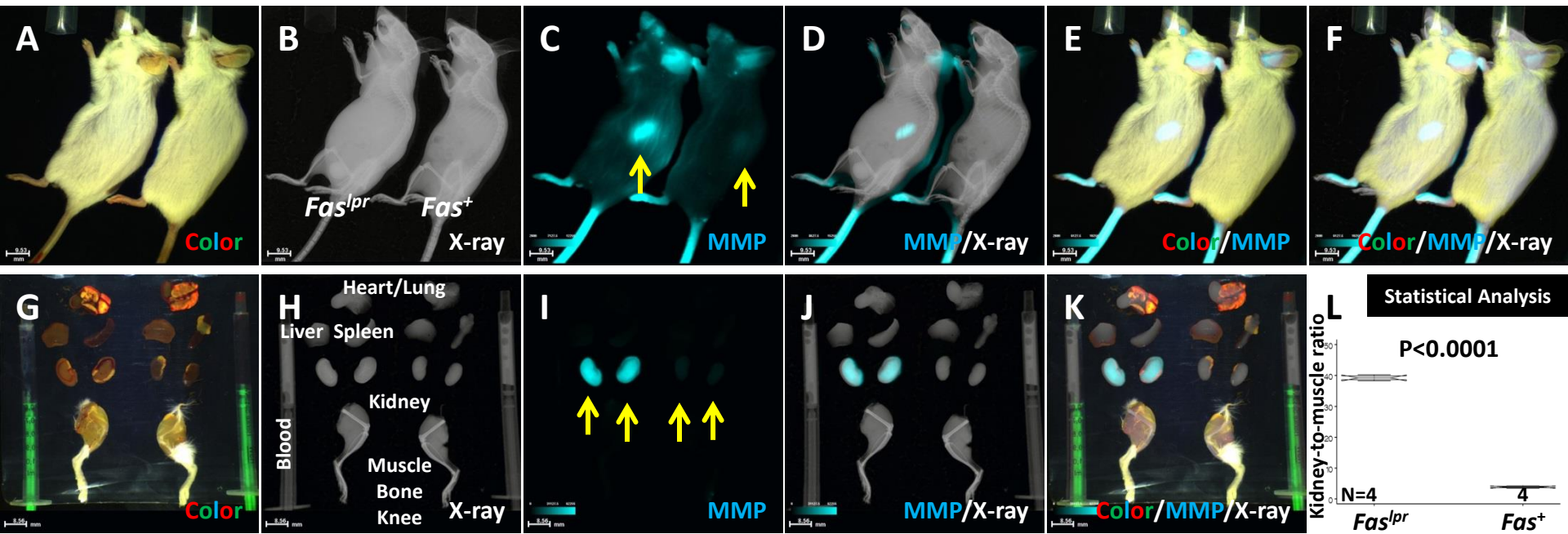
Background

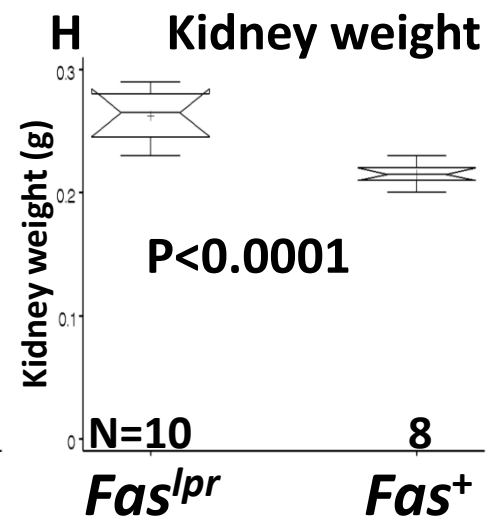
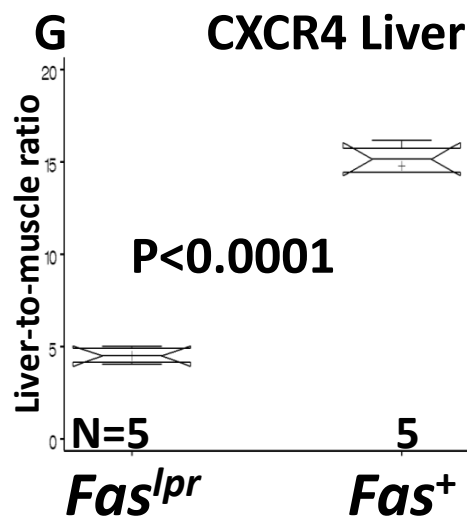
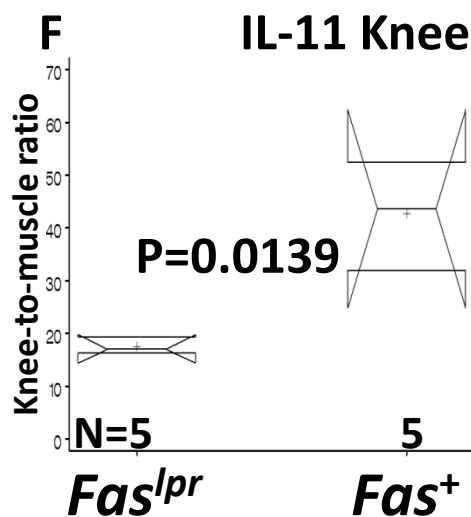
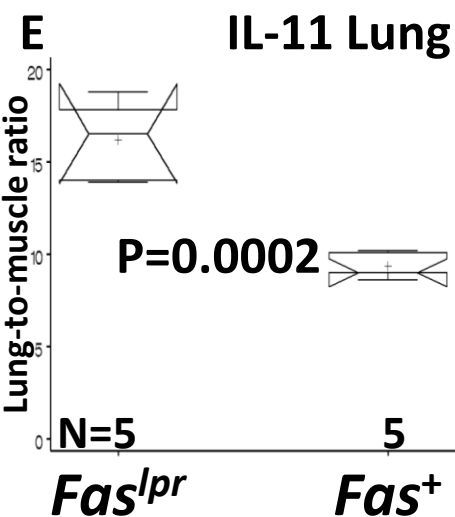
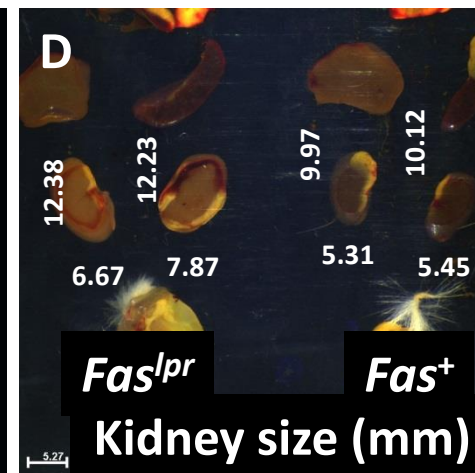
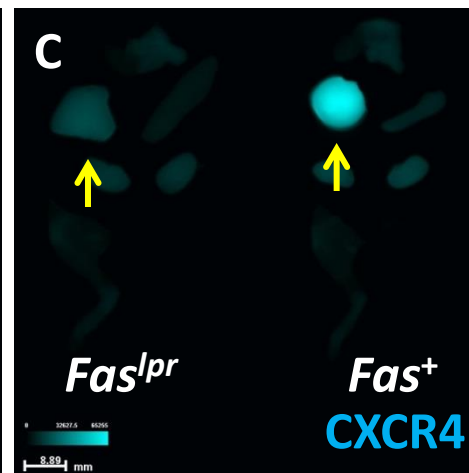
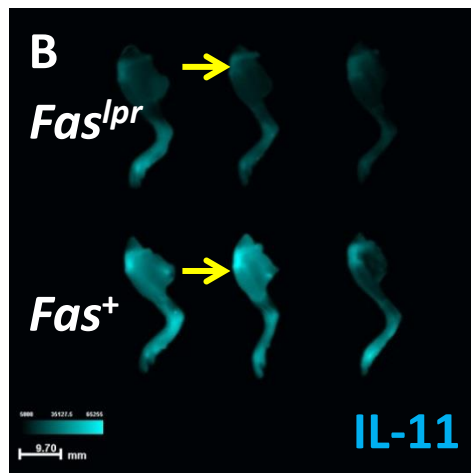
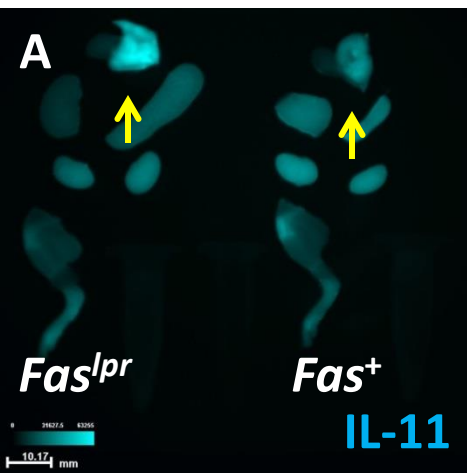
- Precision medicine will improve patient managements and emphasize the differences from both host and pathogens for every disease.
- Statistics helps to identify those differences and advance the clinical acknowledgement.

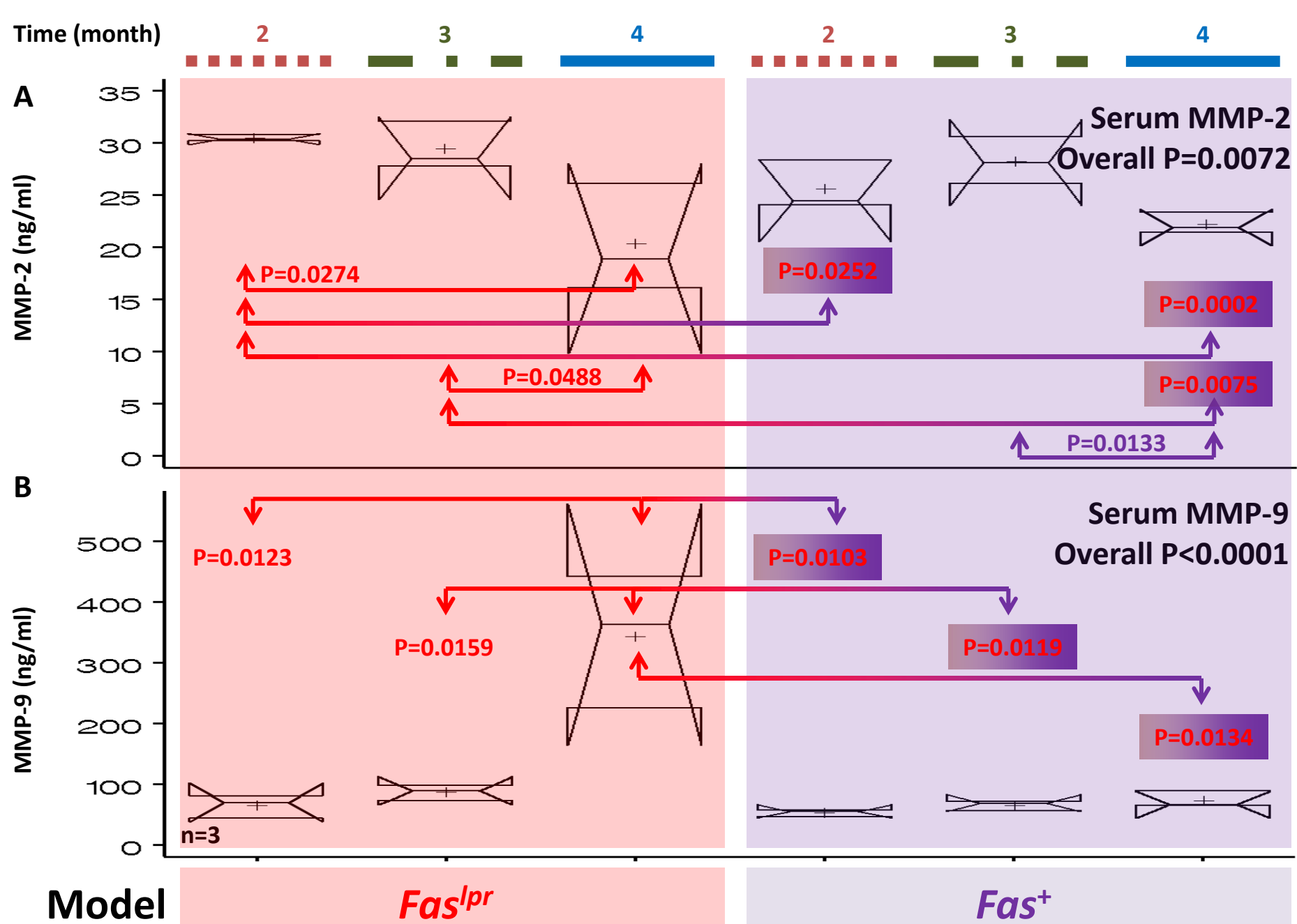
Identify A Single Host Gene Mutation Changes Disease Onset, Severity, Location and Molecular Abnormalities

- *Fas* gene mutation (*Fas*^{lpr} and *Fas*⁺)
- Systemic lupus erythematosus (SLE)
- Organ: lung, kidney, liver, and joints
- Molecular marker: MMP, IL-11 and CXCR4



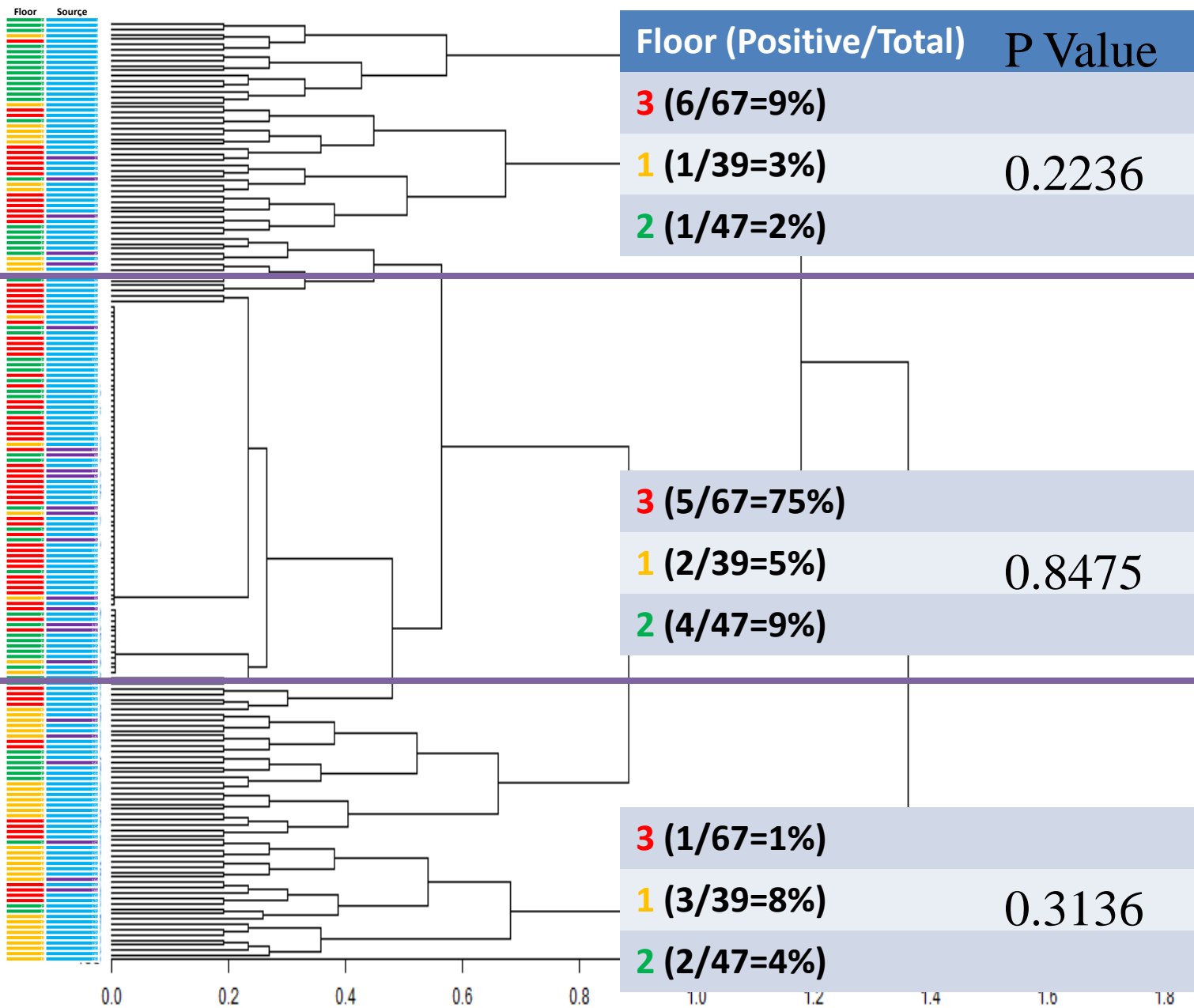






Identify Molecular Difference of Pathogen

- *Clostridium Difficile* (*C. Difficile*)
- Pseudomembranous colitis
- Disease Rate:
- Initial recurrence rate: 25%
- Secondary recurrence rate: 45%
- Third recurrence rate: 65%



Floor A/ Floor B/ Floor C/Environment (living & bath room)/Patient (stool)

Conclusion

- Biostatistics helps identifying the differences from both host and pathogen sides.
- The genetic differences of the host and pathogen could be the contributors that cause treatment failure.
- The combination of genetic, molecular, cellular and statistical analysis will help us to understand the diseases and develop precision medicine.

Acknowledgement

Shoufan Hu, Shi Ke, Hua Chen, Zhi-Dong Jiang, Herbert L. DuPont.

Reference

S. Hu, S. Ke, W. Wang, H. Ran, M. Chen, F. Zhang, X. Qiu, M. Jiang, C. Zou. R. Zhang, L. Cao, Y. Wen, R. Fu and C. Chen. A Single *Fas* Gene Mutation Changes Lupus Onset, Severity, Location, and Molecular Abnormalities in Mice. *Current Molecular Medicine*; 2015: (15) 1-6.

Thank you!