

# THEONELLA



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# Presentation Outline

- Core Talk
  - Background
  - Molecular Structures
  - Reported Biological Activity
- Conclusions
- Acknowledgments
- Insight



# Background

- Theonella (coll. no 95568)
  - Sponge has been collected at various locations
- Selected examples in Southeast Asia include:
  - North Sulawesi (Manado)



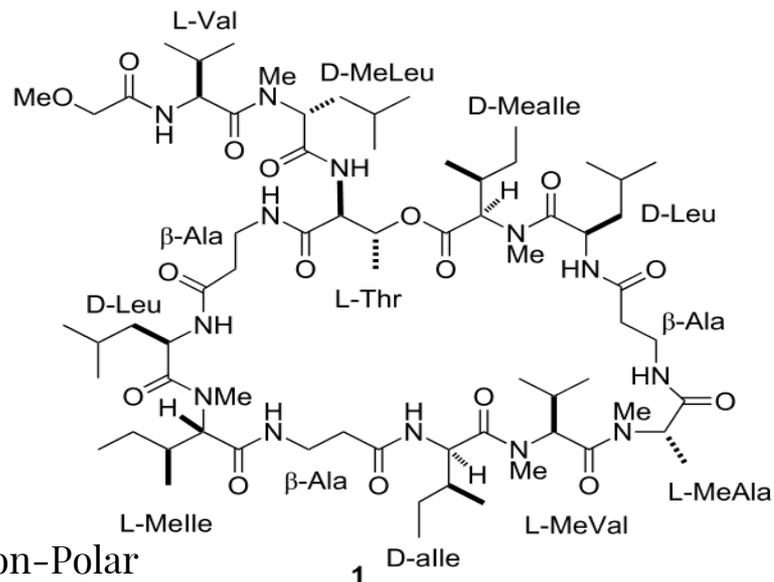
# Background

-Theonella (coll. no 95568)

-Found in Manado, Indonesia



# Molecular Structures

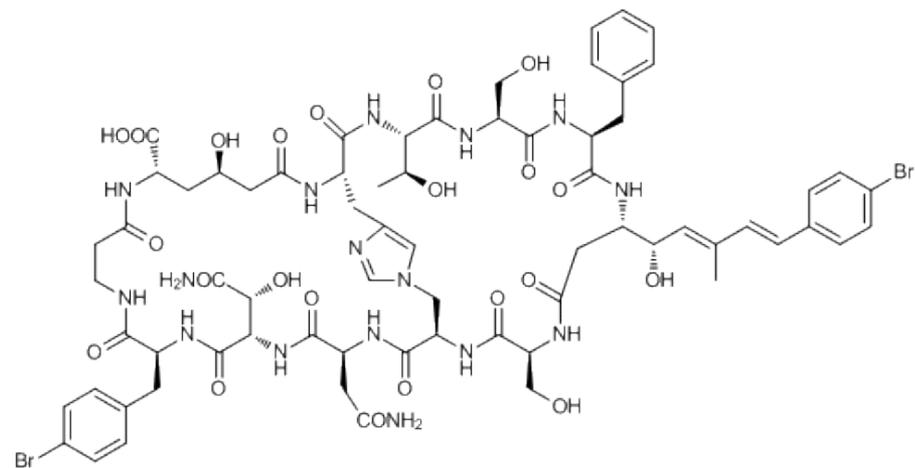


Non-Polar  
**Theonellapeptolide**

$C_{69}H_{121}N_{13}NaO_{16}$

Yields in grams: 0.19785 g

Beilstein J. Org. Chem. 2013, 9,  
1643–1651.



Polar  
**Theonellamide G**

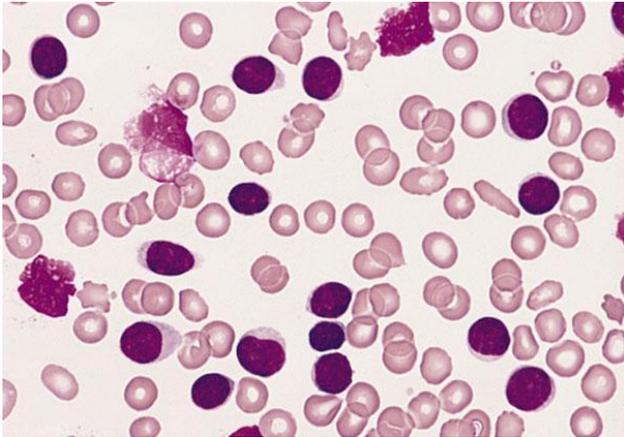
$C_{75}H_{97}BrN_{16}O_{27}$

Yields in grams: 0.98519 g

Mar Drugs. 2014 Apr; 12(4): 1911–1923.  
Published online 2014 Apr 1

# Biological Activity Reported

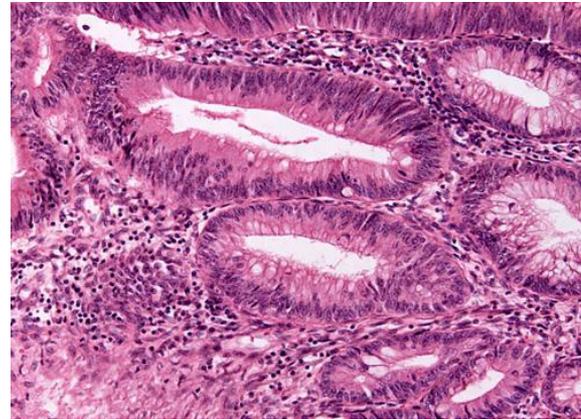
Theonellapeptolide is cytotoxic towards L1210 cells (lymphocytic Leukemia cells).



"Bioactive Natural Products (Part G)." *Google Books*. N.p., n.d. Web. 6 Feb. 2015.

Discover Magazine. 2011

Theonella G is a potent antifungal and has displayed cytotoxic activity against the human colon adenocarcinoma cell line.

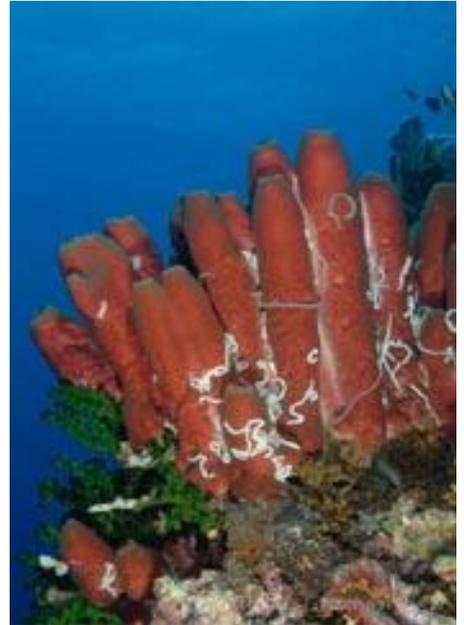


"Theonellamide G, a Potent Antifungal and Cytotoxic Bicyclic Glycopeptide from the Red Sea Marine Sponge *Theonella Swinhoei*." *MDPI*. N.p., n.d. Web. 6 Feb. 2015.

MicroscopyU. Colon Adenocarcinoma. 2013

# Conclusion

- Theonella is a source of the theonella G and theonellamide chemotypes
- They have been collected from:
  - Manado, Indonesia
- These compounds may serve in the treatment of:
  - Leukemia
  - Fungal diseases
  - Colon cancer



# Acknowledgements

Dr. Tyler Johnson

Dr. Diara Spain

Dr. Randall Hall

Our Parents



# Insight

-Besides medicine, sponges have made a huge impact on the cosmetic world

-Tampons

-Art Supplies

-Cleaning

