

GRC 海洋天然物研討會報告(Feb. 24th-28th, 2008, Ventura, CA, USA (美國))

Gordon Research Conference on Marine Natural Products (GRC 海洋天然物研討會)

服務機關：國立海洋生物博物館

姓名職稱：盧重光助理研究員

派赴國家：美國加州

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計畫編號	NSC 96-2113-M-291-001
計畫名稱	海洋微藻聚酮類(polyketides)活性天然物開發研究
出國人員姓名	盧重光
服務機關及職稱	國立海洋生物博物館企劃研究組助理研究員
會議時間地點	Feb. 24 th -28 th , 2008, Ventura, CA, USA (美國)
會議名稱	Gordon Research Conference on Marine Natural Products (GRC 海洋天然物研討會)
發表論文題目	Diverse polyketides of lab-cultured marine dinoflagellate <i>Prorocentrum</i> spp. from Taiwan waters (Poster)

一、參加會議經過

GRC 海洋天然物研討會(Gordon Research Conference on Marine Natural Products)為每二年舉行一次的海洋天然物尖端研究會議，2008.02.24 至 2008.02.28 於美國加州 Ventura 舉行，會議照例由 Gordon Research Conference Organization 主辦，本屆會中主要針對下列十大主題進行廣泛且深入的探討，大會議程目錄附於此心得報告之後。

- (1) 藉由跨領域合作尋求新的科學發現(Collaborative approaches to new discovery)
- (2) 化學分子結構之新思維(New dimensions on inspirational molecular structures)
- (3) 開發與分析海洋天然物的策略(Strategies for discovery and analysis)
- (4) 輕敲海洋微生物多樣性的大門(Tapping microbial diversity)
- (5) 藥物與分子探針的發展(Developing therapeutics & molecular probes)
- (6) 有機合成與藥物化學(Synthesis and medicinal chemistry)
- (7) 未來海洋天然物之星的 Hot stuff from future luminaries
- (8) 化學生物學、化學基因與生合成途徑(Chemical biology, chemical genetics & biosynthetic pathways)
- (9) 海洋天然物研究未來展望(Special insights & future prospects)
- (10) Paul J. Scheuer 教授得獎者演講(The Paul J. Scheuer award lectures)

由於大會接受參加此海洋天然物會議的名額有限，且通常只接受未發表的研究結果，本人的部分研究成果被大會主席認可而被接受，可前往參加此難得的尖端海洋天然物會議，因國科會補助本人出國參加國際會議之費用，已於本年 1 月前往香港參加「海洋科學研究討論

會議」時用掉部份，是故，本人部份自費前往參加此一海洋天然物會議，報告有關台灣海洋渦鞭毛藻原甲藻屬的聚酮類活性天然物研究，海報標題為” Diverse polyketides of lab-cultured marine dinoflagellate *Prorocentrum* spp. from Taiwan waters”，介紹本人於國科會支持下近年的研究成果，並與參加會議的各國學者進行討論，並交換研究心得。

二、與會心得

GRC 海洋天然物研討會是我參加過有關海洋天然物研討會中最好且最具震撼性的一個國際研討會。每天的演講皆排到晚上 9:30pm，因此晚上 11 點依然可見討論的人群散在會場各個角落，參加人數由大會主席控制在 150 人左右，是一個小型的國際研討會，但是與會學者的研究課題卻是多樣性的，每場演講皆是全員到齊。綜合本次大會上討論的主要研究課題，仍持續進行由海洋天然產物中找尋可治療人類疾病的藥物之旅程，然而使用的方法與策略卻是多樣性的，新的技術持續被利用在海洋天然物的開發研究，如質譜影像技術被利用在不同採集地點之相同或相似的海洋藍綠藻，進行已知之可能成為藥物之化合物的快速篩選，期待能取得可產生目標化合物之海洋藍綠藻；分子生物學的方法被利用在海綿與海洋微生物共生體中，二次代謝產物基因的找尋與預測可能之二次代謝產物的化學結構；海洋獨特的微生物仍是目前最熱門的海洋天然物研究的材料，其可經由發酵方法產生新一代藥物，海洋獨特的微生物近年來被認為是人類最可能利用海洋藥物資源的一個大明星；利用有機合成方法何成具藥物潛力的海洋天然物仍是一個挑戰，巨大且具多個光學活性中心的化學結構是海洋活性天然物常具有的特性，來自加拿大 British Columbia 大學的 Raymond Anderson 教授認為利用文獻上肯定的有機合成的方法來合成具有成為藥物潛力的海洋天然物是一個最省時的方法。由於相當多的新技術、新觀念與新的具有開發潛力的海洋天然物在會議中被提出，因此相當多的政府或藥廠研究人員與會並報告，如 Wyeth Pharmaceuticals, NIH 和 Eisai Research Institute 等。

三、建議事項

建議應加強鼓勵國內博士後研究人員及博班學生能積極的參與此國際學術活動以增進本身的學術知識，並可了解此頂尖海洋天然物研究領域的脈動，並期待國科會能主持或獎勵類似之跨領域的科學研究整合會議。

SUNDAY

4:00 pm - 9:00 pm	Arrival and Check-in
6:00 pm	Dinner
7:30 pm - 7:35 pm	Welcome by Chair: Phillip Crews (UC Santa Cruz, USA) & Vice Chair: Guy T. Carter (Wyeth Pharmaceuticals, USA) / Introductory Comments by GRC Site Staff
7:35 pm - 9:30 pm	COLLABORATIVE APPROACHES TO NEW DISCOVERY
	Discussion Leader: Nobuhiro Fusetani (Hokkaido University, Japan)
7:35 pm - 8:05 pm	Amy Wright (Harbor Branch Oceanographic Institute, USA) "Discovery and Investigation of the Mechanism of Action of Cytotoxic Natural Products"
8:05 pm - 8:15 pm	Discussion
8:15 pm - 8:45 pm	Motomasa Kobayashi (Osaka University, Japan) "Bioactive Metabolites from Marine Sponges and Marine Microorganisms"
8:45 pm - 8:55 pm	Discussion
8:55 pm - 9:25 pm	Chris Ireland (University of Utah, USA) "Using Luciferase Reporter Assays to Shine Light on the Cellular Effects of Marine Natural Products"
9:25 pm - 9:30 pm	Discussion
9:30 pm	Reception

MONDAY

7:30 am - 8:30 am	Breakfast
9:00 am - 12:30 pm	NEW DIMENSIONS ON INSPIRATIONAL MOLECULAR STRUCTURES
	Discussion Leader: Valerie Paul (Smithsonian Marine Station, USA)
9:00 am - 9:30 am	Julia Kubanek (Georgia Institute of Technology, USA) "War in the Plankton Revisited: Insurgency Tactics Undermine Harmful Algal Blooms and Their Toxins"
9:30 am - 9:40 am	Discussion
9:40 am - 10:10 am	Abimael Rodriquez (University of Puerto Rico, USA) "Isolation and Structure of Biselisabethoxanes A-E, A Rare Family of Bisditerpenes from Pseudopterogorgia elisabethae"
10:10 am - 10:20 am	Discussion
10:20 am - 10:50 am	Tsukamoto Sachiko (Kanazawa University, Japan) "Structure Elucidation of New Prenylated Indole Alkaloids Isolated from <i>Aspergillus</i> sp"
10:50 am - 11:00 am	Discussion
11:00 am - 11:30 am	Coffee Break / Group Photo (11:15 am)
11:30 am - 12:00 pm	Jeffrey Wright (University of North Carolina, USA) "Swimming with the Dinos: Some Recent Developments in the Chemistry and Biochemistry of Marine Dinoflagellates"
12:00 pm - 12:10 pm	Discussion
12:10 pm - 12:25 pm	Jef K. De Brabander (University of Texas Southwestern Medical Center, USA) "Marine Natural Products: An Inspirational Platform for New Discoveries"
12:25 pm - 12:30 pm	Discussion
12:30 pm	Lunch
1:30 pm - 4:00 pm	Free Time

4:00 pm - 6:00 pm	Poster Session I Dr. David Newman (National Cancer Institute, USA)
6:00 pm	Dinner
7:30 pm - 9:30 pm	STRATEGIES FOR DISCOVERY AND ANALYSIS Discussion Leader: Ted Molinski (University of California at San Diego, USA)
7:30 pm - 8:00 pm	Peter Moeller (Hollings Marine Lab, USA) "Toxin/Natural Products Chemistry in NOAA"
8:00 pm - 8:10 pm	Discussion
8:10 pm - 8:40 pm	Gabriele M. König (University of Bonn, Germany) "The Diverse Secondary Metabolome of Gliding Bacteria"
8:40 pm - 8:50 pm	Discussion
8:50 pm - 9:20 pm	Ricardo Riguera (Universidad de Santiago de Compostela, Spain) "Problems solved by NMR: Stereochemistry, Polymers and Mixtures"
9:20 pm - 9:30 pm	Discussion

TUESDAY

7:30 am - 8:30 am	Breakfast
9:00 am - 12:30 pm	TAPPING MICROBIAL DIVERSITY Discussion Leader: Marcel Jaspars (University of Aberdeen, UK)
9:00 am - 9:30 am	Alan Bull (University of Kent, UK) "Marine Actinobacteria: Developing a Discovery Platform"
9:30 am - 9:40 am	Discussion
9:40 am - 10:10 am	Angelo Fontana (CNR-ICB, Italy) "Exploring the Functional Organization of Metabolic Pathways in Marine Eukaryotes"
10:10 am - 10:20 am	Discussion
10:20 am - 10:35 am	Coffee Break
10:35 am - 11:05 am	Bill Fenical (Scripps Oceanographic Institution, USA) "Marine Bacteria: Novel Structure Types with New Therapeutic Applications"
11:05 am - 11:15 am	Discussion
11:15 am - 11:45 am	Weiming Zhu (Ocean University of China, China) "Chemistry, Microorganism and Environment: Tapping Chemodiversity of Microbial Metabolites"
11:45 am - 11:55 am	Discussion
11:55 am - 12:25 pm	Ray Andersen (University of British Columbia, Canada) "Discovery and Synthesis of Marine Natural Product Pharmacophores"
12:25 pm - 12:30 pm	Discussion
12:30 pm	Lunch
1:30 pm - 4:00 pm	Free Time
4:00 pm - 6:00 pm	Poster Session I (Continued) Dr. David Newman (National Cancer Institute, USA)
6:00 pm	Dinner
7:30 pm - 9:30 pm	DEVELOPING THERAPEUTICS & MOLECULAR PROBES Discussion Leader: Heonjoong Kang (Seoul National University, South Korea)
7:30 pm - 8:00 pm	Fred Valeriote (Josephine Ford Cancer Center, USA) "Anticancer Drug Discovery and Development from Marine Organisms"
8:00 pm - 8:10 pm	Discussion

8:10 pm - 8:40 pm	Ronald Quinn (Eskitis Institute Natural Product Discovery, Australia) "Clavatadine A, a Marine Natural Product with Selective Recognition and Irreversible Inhibition of Factor Xia"
8:40 pm - 8:50 pm	Discussion
8:50 pm - 9:20 pm	Sue Mooberry (Southwest Foundation for Biomedical Research, USA) "Marine-Derived Microtubule Stabilizers: New Progress"
9:20 pm - 9:30 pm	Discussion

WEDNESDAY

7:30 am - 8:30 am	Breakfast
9:00 am - 12:30 pm	SYNTHESIS AND MEDICINAL CHEMISTRY Discussion Leader: Thomas Pettus (University of California at Santa Barbara, USA)
9:00 am - 9:30 am	Dan Romo (Texas A & M University, USA) "Total Synthesis Studies Toward Oroidin Alkaloids Premised on Biosynthetic Considerations"
9:30 am - 9:40 am	Discussion
9:40 am - 10:10 am	Melvin Yu (Eisai, USA) "Natural Products: From Laboratory to Clinic"
10:10 am - 10:20 am	Discussion
10:20 am - 10:35 am	Coffee Break
10:35 am - 10:50 am	John Rainer (University of Utah, USA) "Targeting Polycyclic Ether Libraries at 4700 Feet Above Sea Level"
10:50 am - 10:55 am	Discussion
10:55 am - 11:10 am	Ted Molinski (University of California at San Diego, USA) "Structure, Synthesis and Bioactivity of Antifungal Acyclic Amino Alcohols"
11:10 am - 11:15 am	Discussion
11:15 am - 11:45 am	Janine Cossy (CNRS, France) "Towards the Synthesis of Biologically Active Natural Compounds of Marine Origin"
11:45 am - 11:55 am	Discussion
11:55 am - 12:25 pm	Larry Overman (University of California at Irvine, USA) "Recent Studies in Marine Natural Products, Total Synthesis"
12:25 pm - 12:30 pm	Discussion
12:30 pm	Lunch
1:30 pm - 4:00 pm	Free Time
4:00 pm - 6:00 pm	Poster Session II Yali Fu (National Cancer Institute, USA)
6:00 pm	Dinner
7:00 pm - 7:30 pm	<u>Business Meeting</u> Discussion Leaders: Phil Crews (University of California at Santa Cruz, USA) and Guy Carter (Wyeth, USA) (Nominations for the next Vice Chair; Fill out Conference Evaluation Forms; Discuss future Site & Scheduling preferences; Election of the next Vice Chair)
7:30 pm - 9:30 pm	HOT STUFF FROM FUTURE LUMINARIES Discussion Leader: Yuzura Shimizu (University of Rhode Island, USA)
7:30 pm - 7:45 pm	Coran Watanabe (Texas A & M University, USA) "Accessing 'Silent' Marine Natural Product Pathways"

7:45 pm - 7:50 pm	Discussion
7:50 pm - 8:05 pm	Robert Cichewicz (University of Oklahoma, OK, USA) "Fungi Gone Wild: Exposing What Happens When Fungi Lose Their Inhibitions"
8:05 pm - 8:10 pm	Discussion
8:10 pm - 8:25 pm	Taro Amagata (University of California at Santa Cruz, USA) "Investigating the Chemistry of Two Taxonomically Unrelated Sponges: New Latrunculin Analogs and Their Structure Activity Relationships"
8:25 pm - 8:30 pm	Discussion
8:30 pm - 8:45 pm	Doralyn Dalisay (University of California at San Diego, USA) "Drug-Induced Haploinsufficiency in Yeast. Unraveling the Mechanism of Action of Marine-Derived Dimeric Sphingolipids"
8:45 pm - 8:50 pm	Discussion
8:50 pm - 9:05 pm	Roger Linington (University of California at Santa Cruz, USA) "Probing the Unknown; Natural Products as Chemical Probes in Neglected Disease Research"
9:05 pm - 9:10 pm	Discussion
9:10 pm - 9:25 pm	Phillip Williams (University of Hawaii at Monoa, USA) "Marine Natural Products as a Source of Alzheimer's Drug Leads"
9:25 pm - 9:30 pm	Discussion

THURSDAY

7:30 am - 8:30 am	Breakfast
9:00 am - 12:00 pm	CHEMICAL BIOLOGY, CHEMICAL GENETICS & BIOSYNTHETIC PATHWAYS Discussion Leader: Thomas K. Hemscheidt (University of Hawaii at Monoa, USA)
9:00 am - 9:30 am	Bill Gerwick (Scripps Institution of Oceanography, USA) "Production of Bioactive Natural Products by Microorganisms Associated with Macroorganisms"
9:30 am - 9:40 am	Discussion
9:40 am - 10:10 am	David Sherman (University of Michigan, USA) "Structural Diversity and Enzymatic Versatility in Marine Natural Product Biosynthesis"
10:10 am - 10:20 am	Discussion
10:20 am - 10:40 am	Coffee Break
10:40 am - 11:10 am	Brad Moore (Scripps Institution of Oceanography, USA) "Biosynthesis and Resistance of the 20S Proteasome Inhibitor Salinosporamide A"
11:10 am - 11:20 am	Discussion
11:20 am - 11:50 am	Joern Piel (University of Bonn, Germany) "New Insights into Biosynthetic Pathways from Uncultured and Cultivated Microbes"
11:50 am - 12:00 pm	Discussion
12:30 pm	Lunch
1:30 pm - 4:00 pm	Free Time
4:00 pm - 6:00 pm	Poster Session II (Continued) Yali Fu (National Cancer Institute, USA)
6:00 pm	Dinner
7:30 pm - 8:00 pm	SPECIAL INSIGHTS & FUTURE PROSPECTS Discussion Leader: Guy Carter (Wyeth, USA) "Breakthroughs and Innovations by the late Professor Richard E. Moore" (1933-2007)
7:30 pm - 8:00 pm	John Cardellina (ReevesGroup, USA)

"Winding and Branched Roads - Finding His Niche"

Greg Patterson (Southwest Foundation for Biomedical Research, USA)

"The shift to laboratory culture of cyanobacteria/blue-green algae - Bringing 'em back alive"

Brad Moore (Scripps Institution of Oceanography, USA)

"Who said old dogs can't learn new tricks? Biosynthesis and genetics in the REM group: the later years"

8:00 pm - 9:30 pm

THE PAUL J. SCHEUER AWARD LECTURES

8:00 pm - 9:30 pm

Award Address: **Murray Munro** (University of Canterbury, New Zealand) and **John Blunt** (University of Canterbury, New Zealand)

9:30 pm

Scheuer Award Reception

FRIDAY

7:30 am - 8:30 am

Breakfast

9:00 am

Departure