出國報告（出國類別：其他）

出席 2014 第十二屆國際新藥發明科技年會出國報告

服務機關：核能研究所
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派赴國家：大陸
出國期間：103 年 11 月 17 日~103 年 11 月 21 日
報告日期：103 年 12 月 22 日

摘　要

本次公差主要目的赴大陸江蘇蘇州市參加「2014 第十二屆國際新藥發明科技年會」(12th Annual Congress of International Drug Discovery Science & Technology-2014，簡稱 IDDST-2014)，發表論文並收集藥物發展最新資訊。

2014 第十二屆國際新藥發明科技年會於 2014 年 11 月 18 日～11/20 日舉行，來自歐、美、亞非及大陸等國之產、學、研代表，共計 4 百多位參加。本次會議主題為: (1)Ceremony, policy and Market Trend(2)Breakthrough of Drug Discovery Science, (3)Enabling Drug Discovery Technologies, (4)Best Practice in Drug Discovery against unmet diseases,(5)Round Table and Panel Discussion on New Business Strategy and Accelerating Drug Discovery。討論主題聚焦於國際藥物開發科學與技術，新藥物之設計與開發，市場行銷及加速藥物開發策略等。

會議期間，各國代表分別介紹其公司或研究單位之研發成果。本所羅彩月亦受邀進行口頭論文報告一篇，介紹本所開發生物可分解性微粒之研究現況。本會議對未來本所藥物研發及新材料開發等議題，多有助益。

目　錄

一、目的

2014 第十二届國際新藥發明科技年會（以下簡稱為 IDDST-2014）於 11 月 18-20 日，在江蘇省蘇州市隆重舉行，由大陸外國專家局主辦，國家外國專家局國外人才信息研究中心，百奧泰國際會議（大連）有限公司承辦的。會議主題為『創造藥物發現的的美好未來』(Shaping the Bright Future of Drug Discovery)。

會議主題為: (1)Ceremony, policy and Market Trend, (2)Breakthrough of Drug Discovery Science, (3)Enabling Drug Discovery Technologies, (4)Best Practice in Drug Discovery against unmet diseases,(5)Round Table and Panel Discussion on New Business Strategy and Accelerating Drug Discovery。討論主題聚焦於國際藥物開發科學與技術，新藥物之設計與開發，市場行銷及加速藥物開發策略等。本次大會提供專業領域的藥物發現在多學科平台，討論與分享知識的最新發展，並提供學界與業者之技術與學術之交流平台，找到新的合作伙伴，並促進國際合作與交流，在創新性新藥研究中得到最新的突破。

會議期間，約有 150 篇的論文報告被發表，各國代表分別介紹其公司或研究單位之研發成果。本所羅彩月亦受邀進行口頭論文報告一篇，介紹本所開發生物可分解性微粒之研究現況。本會議對未來本所藥物研發及新材料開發等議題，多有助益。

二、過程

(一) 行程

2014 第十二屆國際新藥發明科技年會（IDDST-2014）於大陸江蘇省蘇州市舉行(如圖一)，議程如附件一所示。羅員參與本次年會，並於發表論文一篇。本次出國行程自 103 年 11 月 17 日起至 103 年 11 月 21 日止，為期 5 天，相關行程及摘要工作項目說明如下：

行程					公差地點		工作內容
月	日	星期	地點		國名	地名	
			出發	抵達			
11	17	一	桃園	蘇州	大陸	蘇州	去程
11	18-20	二~四	蘇州	蘇州	大陸	蘇州	參加 2014IDDST 會議
11	21	五	蘇州	桃園			回程

圖一、IDDST-2014 年會地點為江蘇省蘇州市同里湖飯店

(二) IDDST-2014 研討會

IDDST-2014 會議主題涵蓋相當廣泛，共分成 19 大主題及 21 項次領域(如下所示)，從藥物標靶、前瞻技術、藥品研發之資料處理、轉譯醫學及再生醫學材料等領域，是一個相當大型的藥物研討會。核研所同位素組羅彩月在本次大會上發表一篇論文(Stream 10, session 10-1)，介紹本所開發之生物可分解微粒之研製與應用，論文摘要如附件一所示，獲得與會人員之回應，進行經驗之交流與分享。詳細議程請參考附件二所示。

I. Stream 1: National New Drug R & D Policy and Market Trend

II. Stream 2 : Breaking Research of Drug Discovery Biology

Session 201: Molecular/Cell Biology and Synthetic Biology in Drug Discovery

Session 202: Oncology in Drug Discovery

Session 203:Neuroscience and Drug Discovery

Session 204: Immunology & Endocrinology in Drug Discovery

III. Stream 3 Innovation in Drug Targets

Session 301: Targeting Protein Kinase, New E

Session 302: PI3K and Ubiquitin pathway

Session 303: Allosteric Modulators and GPCR

Session 304: Targeting cancer cell metabolism, cancer stem cell, DNA damage repair and tumor suppressor networks

Session 305: Targeting Cell Apoptosis, cell signaling, cell cycles.

IV. Stream 4: Drug Discovery Pharmacology, Toxicology and Pathology

V. Stream 5: Frontier Technology of Drug Discovery

Session 501:Cellular Reprogramming and iPSC Technologies

Session 502: Molecular Imaging and Optical Imaging Technologies

Session 503:Nanotechnology in Drug Discovery

VI. Stream 6: Bio-IT and Data Management in Drug Discovery

Session 601: Biosimulation and in Silico Models, Bioinformatics and cheminformatics, laboratory Information Systems

Session 602: Database, Data Integration, Knowledge Management and Information Platform for Drug R&D

VII. Stream 7: Bioassay and Drug Screening

VIII. Stream 8: Omics-Based Drug Discovery Technology

IX. Stream 9: Bioanalysis & Instrumentation in Drug Discovery

X. Stream 10 : New Drug R & D Pipeline for Unmet Diseases

Session 10-1:cancer/tumors

Session 10-2: CNS diseases

Session 10-3: Diabetes and other Metabolic Disorders

Session 10-4: Infection

Session 10-5: Pain

Session 10-6: Bone diseases and Neglected Diseases

XI. Stream 11: Biotherapy and Bioprocessing

XII. Stream 12: Traditional Therapies and Natural Products

XIII. Stream 13: Young Investigator Forum

XIV. Stream 14: Symposium of Translational Medicine and Key Opinion Leaders

XV. Stream 15: Symposium of Drug Designology

XVI. Stream 16: Symposium of Drug Discovery R & D Outsourcing Service

XVII. Stream 17: Symposium of Biosimilar, Biobetter, and Generics

XVIII. Stream 18: Symposium of Clinical Trial, hospital Management and Business

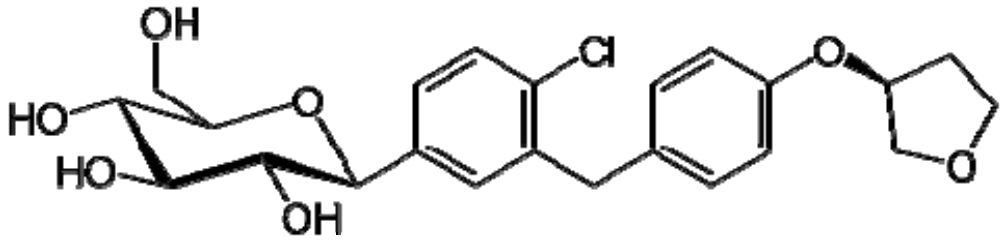
XIX. Stream 19: Symposium of Regeneative Medicine and Innovative Medical Materials

專場一: 生物基礎科學與創新藥物研究 (特別為英文程度較差學生或研究人員設計，全程中文介紹)

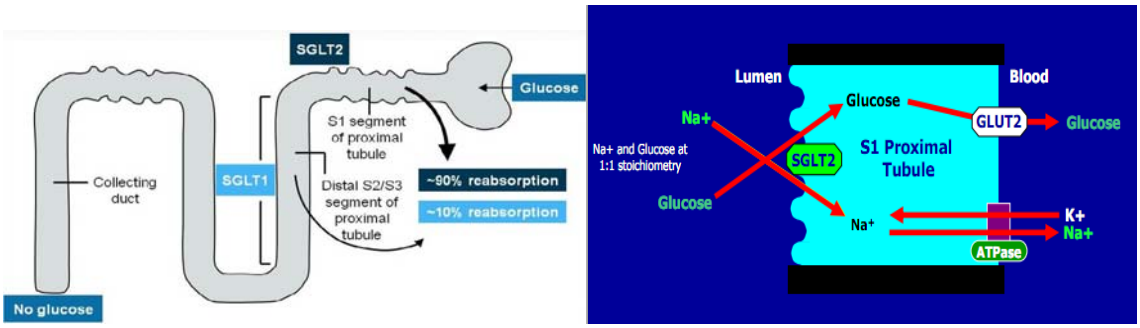
專場二、重大疾病新藥研發臨床研究與開發工具(特別為英文程度較差學生或研究人員設計，全程中文介紹)

(三) 會議摘錄

Michael Mark 博士是德國百靈佳製藥(Boehringer Ingelheim Pharma GmbH & Co. KG, Germany)的副總裁，兼心臟代謝疾病研究項目之全球主管。本次會議，Dr. Mark 特別介紹第 II 型糖尿病治療药物 SGLT2 抑制劑之研發現況 (SGLT2 Inhibitors for the Treatment of Type 2 Diabetes – A Promising New Class)，該公司之 SGLT2(sodium-glucose co-transporter 2)抑制劑 empagliflozin (圖二)。SGLT2 inhibitors 是一個發展相當的新型糖尿病治療用藥，其作用機轉如圖三所示。美國 FDA 已經核准兩個這類的藥品上市，Ipragliflozin 是第一個在日本上市之 SGLT2 inhibitor。百靈佳公司之 Empagliflozin 則已在歐洲及美國核准上市。據估計，美國約有 1880 萬個成人及兒童被診斷有糖尿病，可能還有 7 百萬人未被檢測出來，這個數字預計會到 2050 年會再大度上升。成人每天大約 180 克葡萄糖會被腎絲球過濾，但幾乎全部會被再吸收進入循環中，其中 90%的葡萄糖是經由近端腎小管 (luminal membrane of the proximal renal tubules)上之 SGLT2 再吸收進血液循環。第二糖尿病患者可能就是其腎臟之 SGLT2 過量表現，導致葡萄糖大量再吸收，而使血糖值高居不下。藉由阻斷 SGLT2，將可有效降低血糖值。



圖二: Empagliflozin 之化學結構

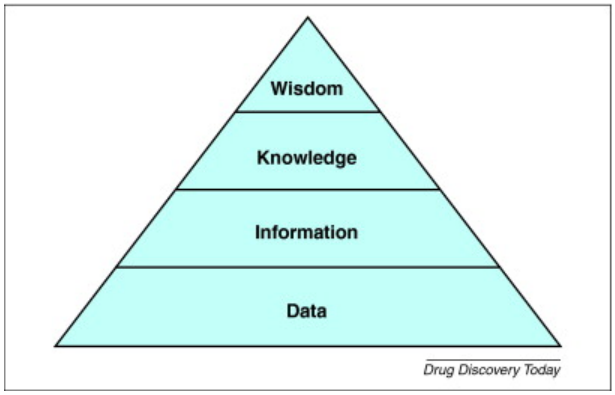


圖三: SGLT2 inhibitor 之作用機轉

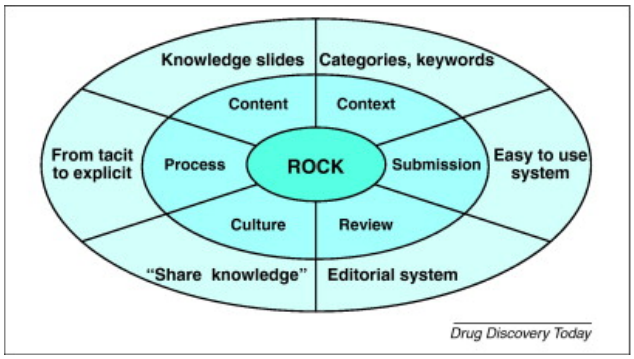
瑞士羅氏製藥小分子研究全球主管 Hans-Joachim Bohm 博士報告『The future of Small molecule Research』指出，今年是 Roche 到中國 10 週年，目前正在上海執行 clinical trial。為何羅氏公司會從事小分子之研究? 據統計，每個人終其一生大約會使用到 15000 錠劑(藥丸)，因此，羅氏公司投入 50%以上之研究在小分子方面。小分子之好處包括: (1)reach intracellular target, (2)designed for brain uptake, (3)transformed therapy, (4) personalized healthcare。對小分子之設計與合成，Hans-Joachim Bohm 博士認為仍需測試與分析，找出 Lead compound 後，再做 Improving lead identification and lead optimization。Roche 逐年增加小分子之研究，並執行 GLP testing。

有關於知識之累積，Roche 自 2005 年即開始建立 ROCK(Roche Chemistry Knowledge)資料庫，類以 Textbook 般，全員參與，藉由 Sharing rules on matched molecular pairs，整合成知識庫，對於未來藥物設計(Structure-Activity- Relation-ship)Integrated SAR data generation, (3)Enabling microfluidics & flow-chemistry Compiling flow-chemistry with dose-response screening。(圖四至七)

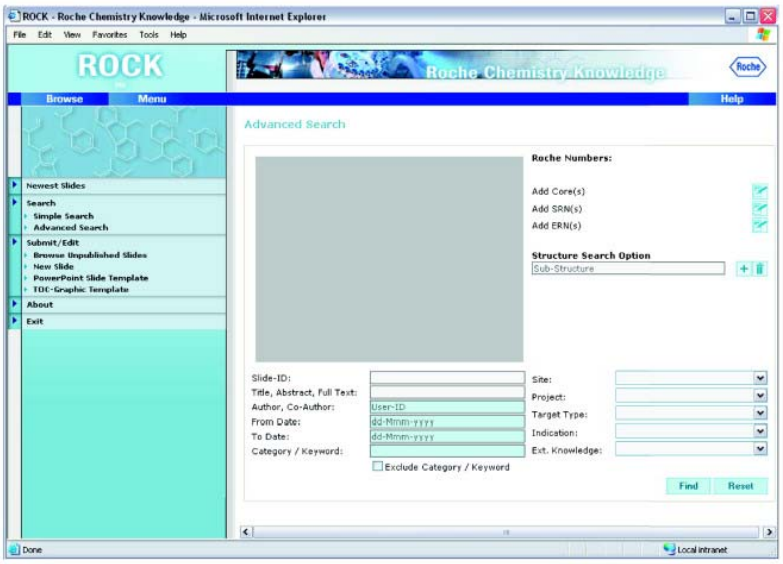
下一世代的小分子研究應著重於 knowledge management 及 Silico science，亦即 performed on computer or via computer simulation。



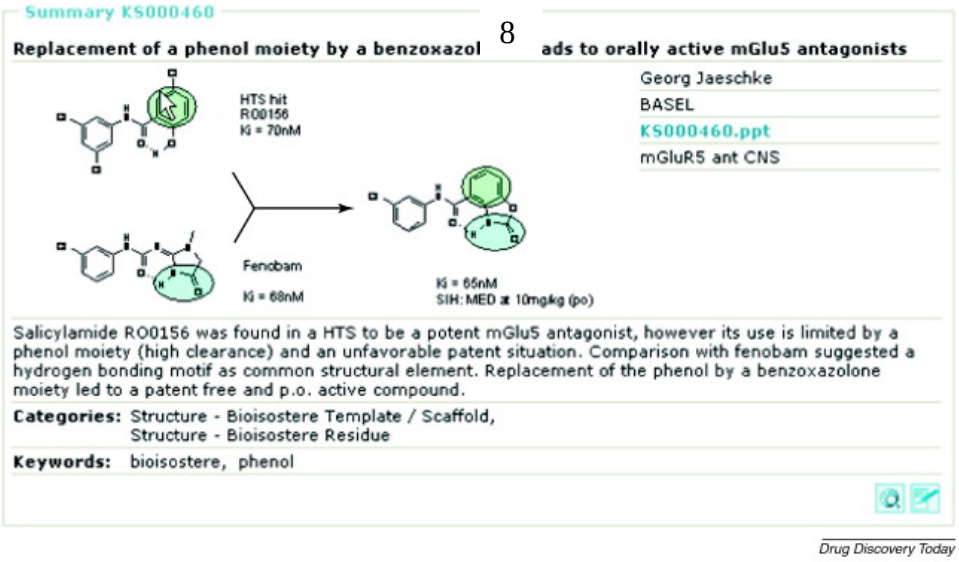
圖四、The knowledge pyramid.



圖五 Strategy and content of the Roche medicinal chemistry application



圖六： The advanced search function within ROCK.



圖七. Summary layout: abstract view of a knowledge slide.

Patrice P.Denèfle 博士提出『The challenge of turning genomic medicine into practice』之報告，他曾在 Rhône-Poulenc Rorer 和賽賽諾菲安萬特公司工作期間開創了心血管基因治療領域，並發起了多個關於于人類遺傳學、功能基因組學和藥物基因組学的研究项目。Denèfle 博士加入了益普生公司後，擔任副總裁，建立一個能够整合精密醫學的醫療科學方法平台。在 2014 年，Denèfle 博士創立了 MedBiomiX Partners SAS 公司。Denèfle 博士指出 90% R&D 的費用都是用來產生數據，這些大量數據應予以改革成有效且有用之數據。轉譯醫學(Translational science)可以提供早

期之臨床評估，EPIGROW 是利用大量的流行學及基因體數據去區病患之特質(Epigrow study: patient distribution and study design Population genetic SNP signature.)。MedBiomix Partners SAS 與許多公司做策略聯誼，提供醫師 advanced data-driven solutions 使能做出比較好的診療，例如該公司與 Portable Genomics 公司合作，發展一套可攜式軟體可用於評估 genomic-based results through a graphical and well-known interface related to digital media，以改善病患之生活品質。

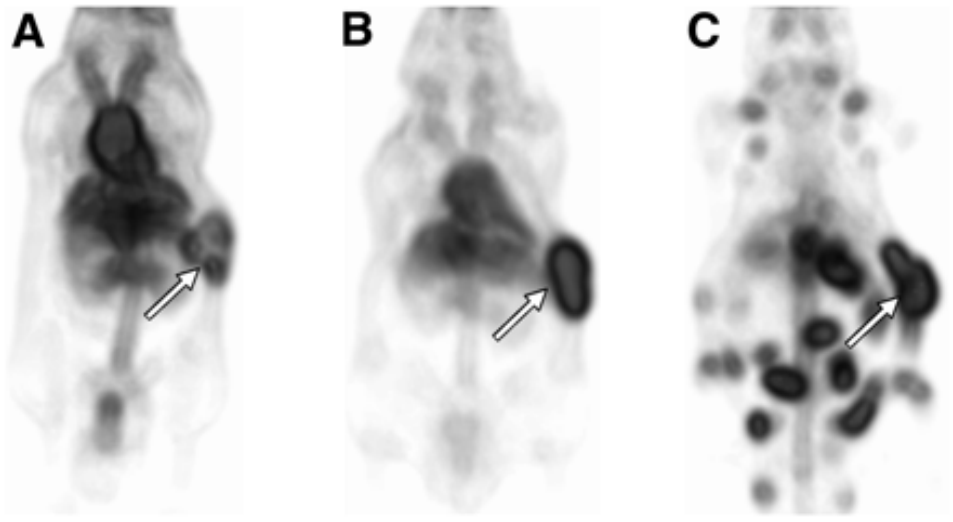
中國藥明康德(UCB)副總裁高陶博士(Dr.**Tao Guo)**有 30 年製藥領域之經驗，曾在美國國家衛生研究院，亦曾是 American Chemical Society 之有機化學研討委員會成員， ChemTracts-編輯成員。2008 年加入藥明康德公司後，積極開創新藥研發，擁有 30 多項專利，已有 10 個臨床前候選藥物，並有 2 個進入 Phase II 臨床試驗。他以『Transforming Innovation in Drug Discovery though Collaboration and Partnership』為題，介紹藥物開發之合作伙伴關係。隨著藥物研發費用愈來愈高，如何尋找伙伴，建立聯盟，或者委託他人服務(contracted research organization，CRO)，共同致力於藥物開發是一個相重要的議題，他提出他們公司的規模，可以做的服務項目，以及全球據點之分佈。該公司目前聚焦於免疫治療用藥及中神經系統用藥。他們公司全球有 8500 employees，分佈於 40 多個國家，每年投到 R&D 的費用超過 4% revenue (圖八)。他也認為品質是可以經過設計，必須有科學及統計及良好的知識做為依據的。由於公司都有許多持股人，對於股東要有共通之語言，才能進行最佳之溝通。他自豪地指出，只要你給他們一個樣品，他們公司就可以幫忙把它送進 FDA。

圖八．新藥研發費用及 UCB 之技術能量

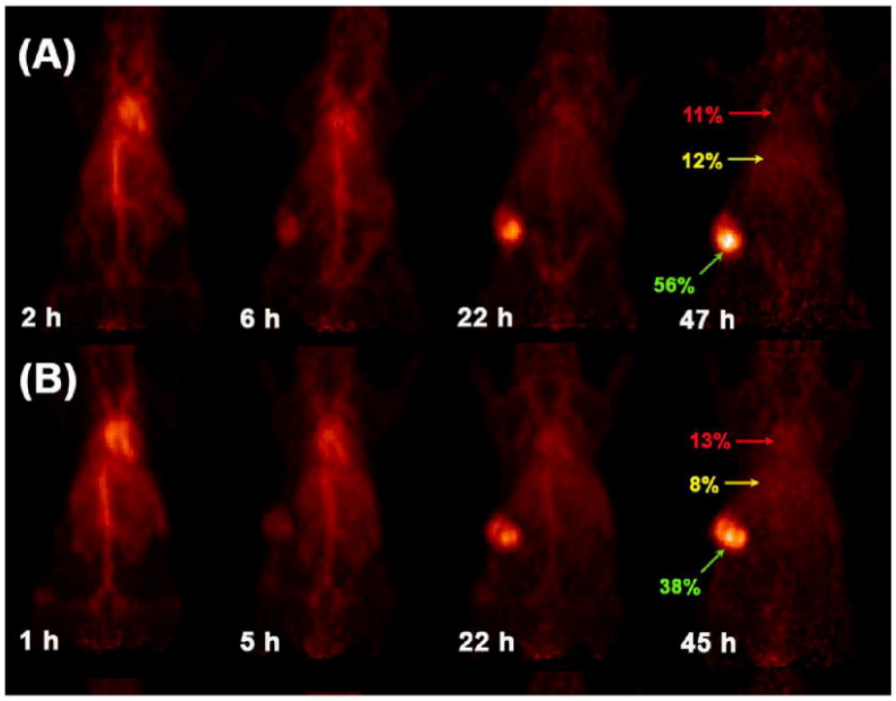
本次會議中，與本所核醫直接相關者僅有三篇，其中一篇為本發表之 PLGA 做為微米材料之應用研究，另外二篇為 Dr. Tsuno Yano 提出之『Innovative R&D of therapeutic antibodies : Utilizing PET Molecular Imaging by ^{64}Cu and ^{89}Zr』，Dr. Tsuno Yano 亦受邀介紹『Drug Development—Past, present and future—the impact of PET molecular imaging for future drug development』。

Zr-89 是一種 PET 核種，由於其半衰期為 78.41 小時，十分適合於抗體或蛋白質之標誌應用研究，因此，Zr-89 又被稱為 Immuno-PET。比利時 IBA 公司已可利用其 cyclotron 產製 Zr-89，且已建立 GMP 相符合之 Zr-89 生產設施。Zr-89 標誌單株抗體 Trastuzumab，用於小鼠 SKOV-3 乳癌動物模式之應用研究，探討靜脈注射後，第 6 小時、第 1 天與第 6 天之藥物分佈，由圖九可以清楚看到藥物分佈於腫瘤部位(箭頭所示)。由於 Zr-89 半衰期長=力十分適合蛋白質藥物之追蹤。

Cu-64 也是一種 PET 核種，也可釋出 beta ray，適合於治療。Cu 有相當多放射性同位素，包括 Cu-61, Cu-62, Cu-64, Cu-67 等等，核研所曾開發 Cu-64 射源之研製技術，並應用於 ATSM 標誌研究。Cu-64 的半衰期僅有 13 小時，Cu-64 ATSM 是一個缺氧造影劑，美日皆十分重視這項藥品的開發，日本橫濱大學正做一系列之臨床應用研究，亦可改用另一種放射性銅 Cu-62，它可以自發生器產製，方便取得。(圖十)



圖九: Examples of noninvasive small-animal PET images (dorsal presen aion). ^{89}Zr-trastuzumab (5 MBq per mouse) uptake in human SKOV-3 xenografts in 3 mice at 6 h (A), day 1 (B), and day 6 (C, metastasized tumor) after injection is shown. Primary tumors are indicated by arrows. (本圖選自 J Nucl Med 2009; 50:974–981)



圖十：Dynamic biodistribution of ^{64}Cu-labeled hT84.66-M5A MAbs in athymic mice peripherally xenografted with CEA-positive LS-174T colon tumors (本圖出自 Bioconjug Chem. Jan 2008; 19(1): 89–96.)

瑞典 IFPA(International Federation of Psoriasis Association)的主席 Dr. Lars Ettarp 介紹他們的組織，並分享他們組織為牛皮癬這個疾病所做的努力與運作策略。牛皮癬(Psoriasis)及牛皮癬關節炎(Psoriatic arthritis)影響全球 1 億 2 千 5 萬人，以往認為這種病僅是皮膚與外觀的問題，經基因學等深入研究，顯示這個疾病對於壽命的縮短有其風險性，且是一代謝相關的疾病。IFPA 為引起大眾的注意並深入了解疾病成因與治療方法，自 2003 年起，規劃邀請全球俱影響力的皮膚科醫師與風濕疾病科醫師參與討論，2006 年辦理第一次 Psoriasis 國際研討會，自此以後，每三年開一次會議。IFPA 的努力獲得肯定，World Health Association 訂定每年 10 月 29 日為 World Psoriasis Day，認定這個疾病為嚴重的慢性疾病，它會引起疼痛且是不可治癒之病，但它沒有傳染性。IFPA 下一步的重點為建立疾病之圖譜，以利於辨識；並確認牛皮癬用藥皆列入 WHO 的 Essential Medicines 之中，讓大眾認知牛皮癬是一種無法治癒之殘疾。

Dr. Sandeep Duttagupta 分享他如何把 R&D 產品推廣到商業化，Dr. Duttagupta 目前為 CBPartners 的副總裁，他曾任職於 *Pfizer* 輝瑞公司，專職對新興市場的價格與推

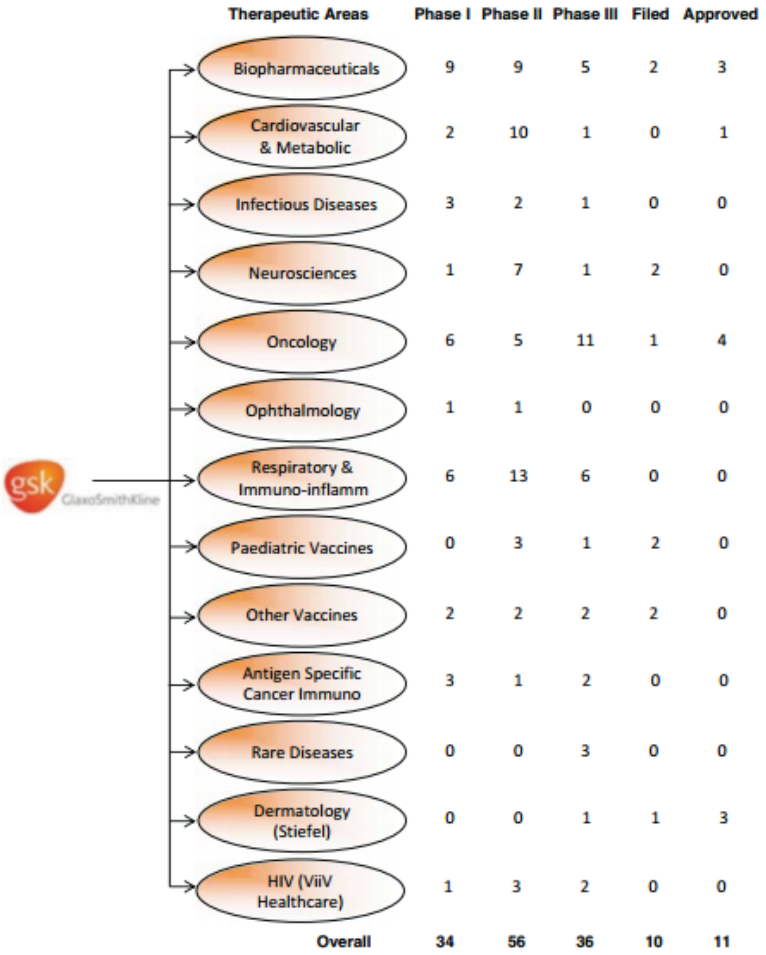
廣策略。無論私人或大眾健康照護系統，皆面臨費用上漲與需求增加之壓力，在有限經費內，使用新藥之機會減少，對於新開發的藥物之市場推動愈顯困難。依照以往之經驗，每 5000-10000 個俱有潛力的新藥中，僅有一個會獲得 FDA 核准上市。依據 PharmaProject 2010 的資料，降低藥物開發之風險性，全球前二十五大藥廠，每個公司都有 43-304 開發中藥物，並分散於不同的治療領域，以降低上市藥物推廣之風險，或者維持市場佔有率。

由表一可以看到抗癌藥是所有藥物中投入最多新藥開發者，再其次為生物製劑(Biotechnology products)與神經用藥(neurological products)，處方研究(Formulation study)亦佔相當市場，顯示新劑型開發之重要性。圖十一與十二分別顯示 GSK (GlaxoSmithKline)公司與 Pfizer 公司之新藥發展狀況。市場推廣策略方面，他邀請銀行或ＮＧＯ投資藥物之開發，並同時，要與當地之衛生主管機關建立伙伴關係，協助各項事務之推動，建立良好之互動。

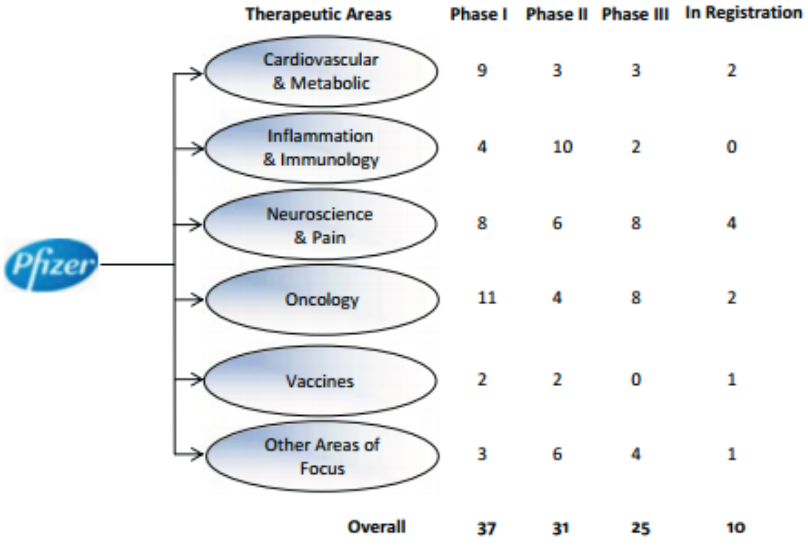
表一、統計至 2010 年 12 月 31 日，各項疾病治療領域開發中的藥物(本表引自 PharmaProjects 2010)

	Number of compounds	Therapeutic areas
A	1,442	Alimentary/metabolic products (including gastrointestinal group)
B	447	Blood and clotting products
C	800	Cardiovascular products
D	508	Dermatological products
F	1,548	Formulations
G	480	Genitourinary (including sex hormones)
H	166	Hormonal products (excluding sex hormones)
I	543	Immunological products
J	1,710	Anti-infective products
K	2,608	Anticancer products
M	1,093	Musculoskeletal products
N	1,936	Neurological products
P	94	Antiparasitic products
R	601	Respiratory products
S	410	Sensory products
T	2,330	Biotechnology products
Total	16,716	

[a]PharmaProjects (2010) reports a compound which targets multiple therapeutic areas in both areas, hence it should be noted that there are 9,717 total compounds under development, and 16,716 projects which may target the same compound for different diseases



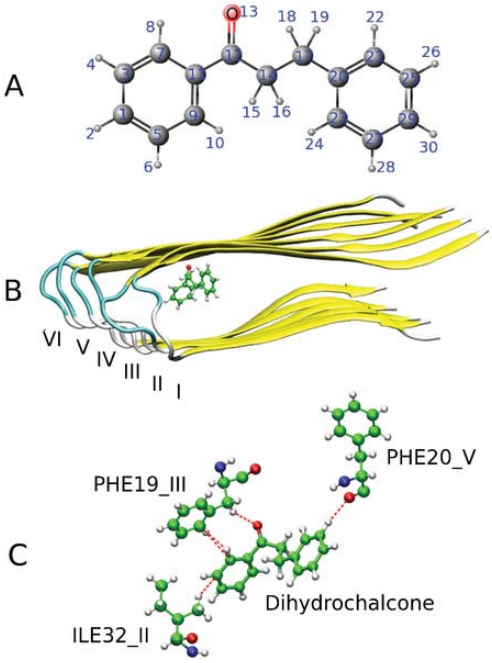
圖十一、GlaxoSmithKline 公司 2011 年各階段開發中藥物數量。



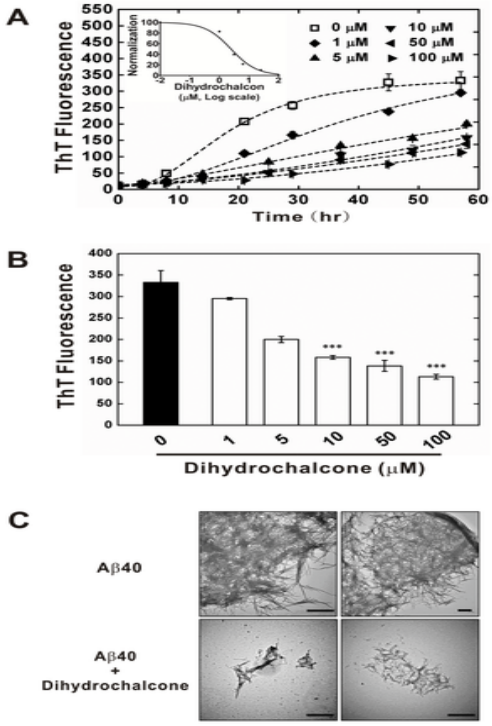
圖十二、輝瑞藥廠(Pfizer)2011 年各階段開發中藥物數量。

來自台灣中央研究院物理所胡進錕博士，他介紹以 virtual screening method 針對 Alzheimer's disease(AD)之 Aβ40 與 Aβ42 之結構，由 32364 種化學結構中找出 10 種俱有潛力的藥物。在這十種藥物中，又以 Dihydrochalone (圖十二所示)經由模擬測試分析其對 Aβ40 與 Aβ42 俱有很高之結合能力，細胞實驗亦有相似之結果(圖十三)，顯示 Dihydrochalone 對於 AD 之治療應用十分具有潛力。

圖十二. Chemical structure and the best docking pose of Dihydrochalcone



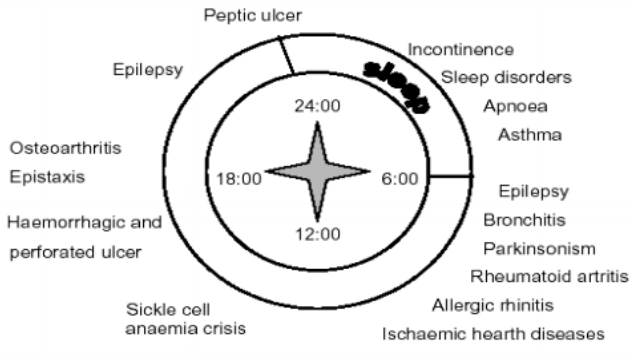
圖十三. Dihydrochalcone suppresses A fibrillization



美國 Central Michigan University 的 Dr. Mohant 報告血管內皮層受傷後，平滑肌細胞由成熟型(mature)轉變成增生態，以做內皮層之修補。有許多研究顯示，SMC 增生與血管粥狀硬化斑塊(Atherosclerotic plaque)之產生有關連性，且可能與血管幹細胞(multipotent vascular stem cell, MVSC) 之增生與分化有關。細胞實驗，slow and sustained NO-releasing agent 可以抑制 MVSC 的增生與分化，顯示俱有應用之潛力。

美國 Memphis 大學 Dr. Andrew Liu 介紹 Chronotherapeutics 應用於藥物之給藥與開發。Chronotherapeutics 依其字義，它是一種與生物時鐘相關的治療方法，許多藥物在體內之身體的 peak-to-trough rhythmic activity in disease symptoms and risk factors,

pharmacologic sensitivity, and pharmacokinetics 皆與生物時鐘與疾病狀態相關連，例如 premature aging, compromised mental performance, insomnia and obesity 等(圖十四)。如能配合生物時鐘，將可提昇藥物作用之效率。



圖十四、生物時鐘與各種疾病之關係圖

如何設計 CHRONOTHERAPEUTIC DRUG DELIVERY SYSTEMS 以達到藥物傳輸之目的?

1. Layered systems: 利用多層次的給藥設計，使其達到藥物緩釋之效果。Time-controlled explosion systems (TES):目前已發展單層或多層之給藥系統，藥品放在在核心層，外層則為 inert osmotic agent ，並含有適量之崩散劑(disintegrants)。
2. Sigmoidal release systems (SRS):含有滲透壓式(osmotically) active organic acid，並包覆有不溶解性高分子材料(insoluble polymer) ，以達到不同的延遲釋放時間。
3. Press-coated systems:如下圖所示，外層為 press-coated polymer。

除了上述幾種給藥的劑型，近年來，亦有其它劑型陸續被開發，例如利用 Elementary osmotic pumps 做成之 controlled onset extended-release (COER-24) verapamil formulation 可用於控制血壓與心跳，這個藥已在美國上市，效果較傳統劑型好很多。

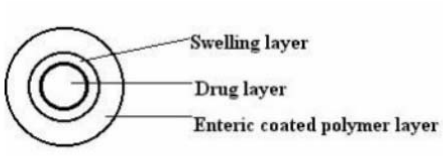


Figure 2: Schematic representtion of enteric coated system

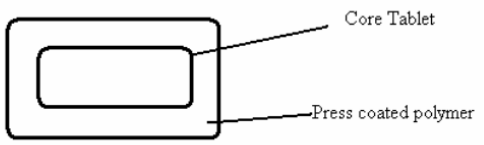
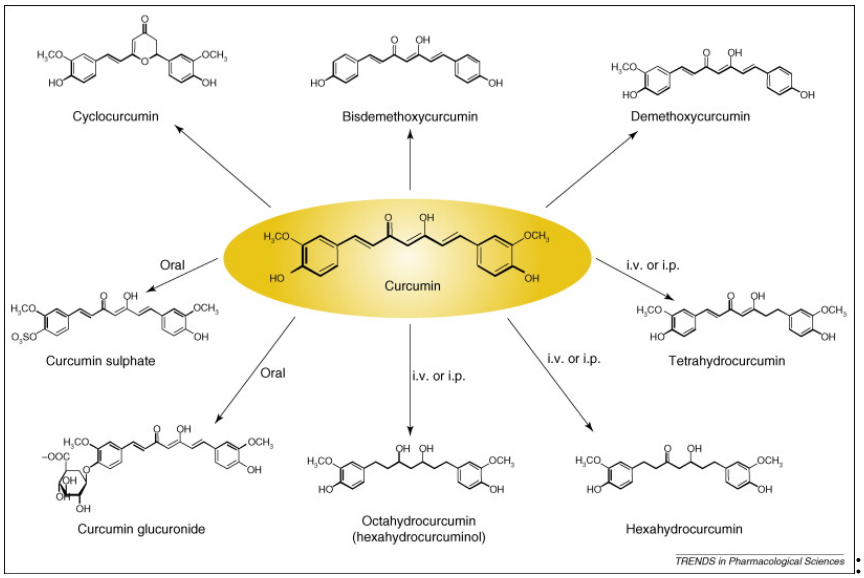


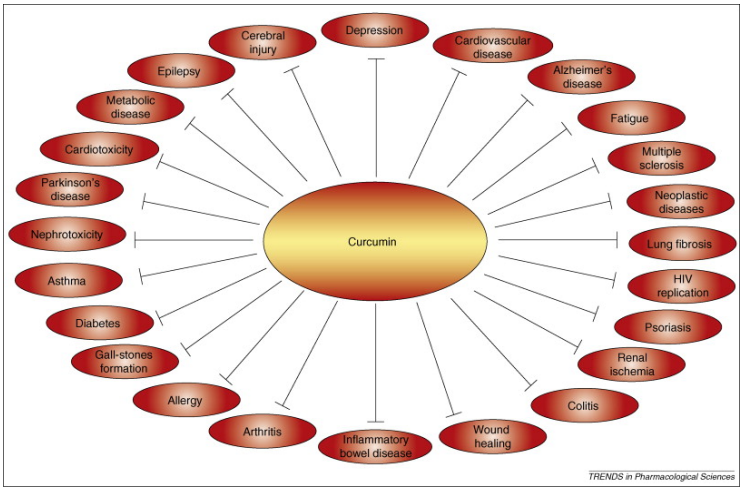
Figure 3: Schematic representation of a press-coated system

Tumor suppressor protein P53 被認為是"Guardian of the genome"，有許多癌症被證實其 P53 有許多變異，且凡是 p53 變異之癌症大多是惡性且不易治療的。美國 Oncoceutics 公司之 Dr. DasMahapatra 介紹一種新的療法，標的物是 mutant p53，他們已經找到一些小分子可以將 mutant p53 轉回成原來具有抗癌作用之能力。

薑黃(curcumin)是一種多酚類(polyphenol) (圖十五)，印度傳統醫學認定它被認為可以抗病毒、抗癌、抗關節炎、抗氧化及抗發炎等諸多作用。許多研究人員深入研究其效果，並探討其代謝路徑，如及十六所示。但臨床有效的報告卻很少見，為何會有這種現象? 其中一項原因是能是薑黃的溶解度差，不利於吸收。為改善這個問題，；亦有人開始利用 nanoparticle, liposome, complex with phospholipid, cyclodextrin 及 solid dispersion 劑型以提昇其吸收能力。

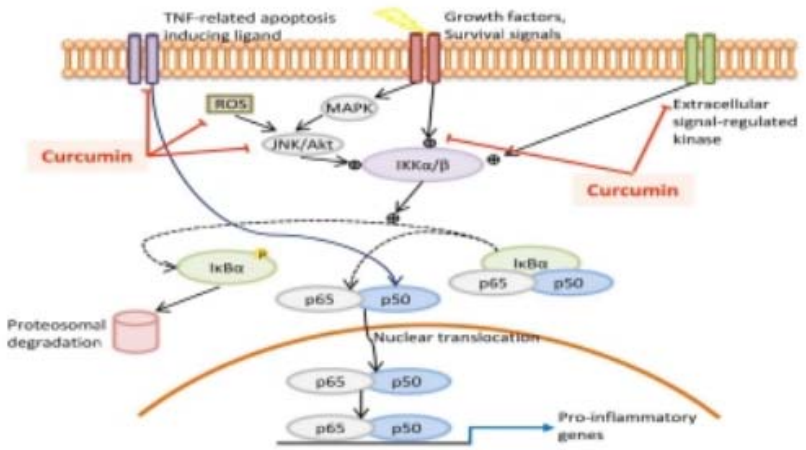
圖十五. 薑黃及其類物及謝物的化學結構(本圖引自 TIPS 2009)





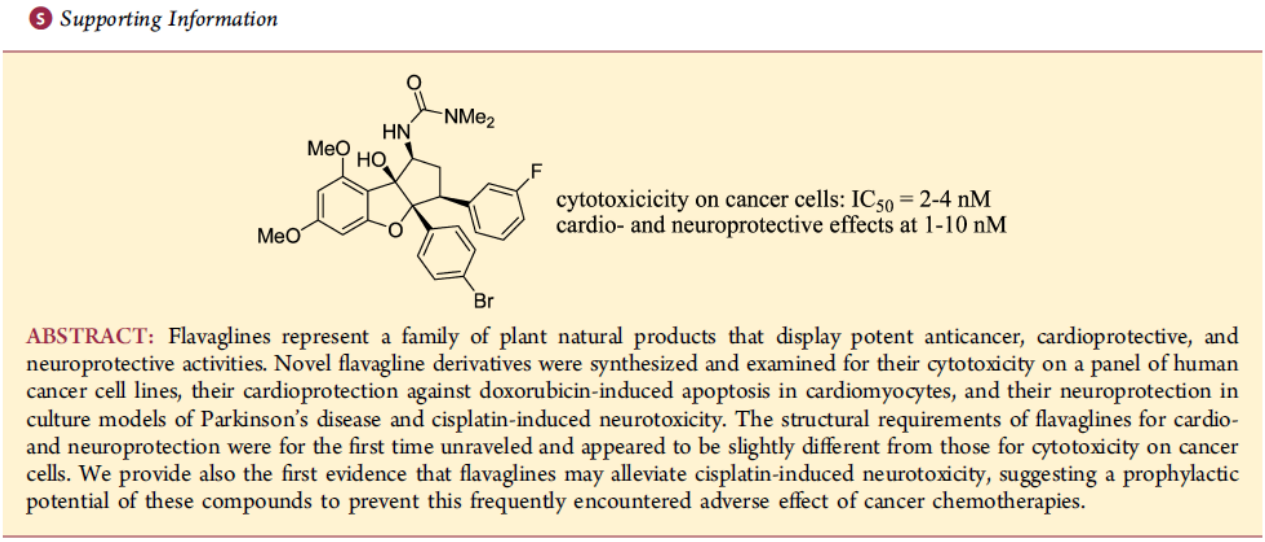
圖十六

Effect of curcumin on neurodegenerative, cardiovascular, pulmonary, metabolic, autoimmune and neoplastic diseases. For references



圖十七: 薑黃之抗癌作用機轉，可能透過抑制 NF-κB 引發癌細胞死亡(本圖引自 Asian Pacific Journal of Cancer prevention 2009, vol 10)

法國 CNRS-Strasbourg University Dr. Desaubry 介紹新的抗癌藥物 Flavaglines (圖十八)，它是由一類天抗癌物所衍生出來的化合物，已被證實對癌細胞有很強的毒殺作用，但對正常細胞卻沒有毒性，它乃經由 PROHIBITINS PATHWAY 的 prohibitin-1,2 蛋白質上(圖十九)。也有實驗證實，Flavaglines translation initiation factor eIF4a。轉移性黑色素瘤之動物實驗，證實它可以改變對化療有抗藥性，提昇其癌症治療效果。



圖十八、 Flavaglines 化學結構與細胞毒性說明（本圖引自 Journal of Medicinal Chemistry 2012）

圖十九、Flavagline 的結構與活性關係(Structure –Activity Relationship)

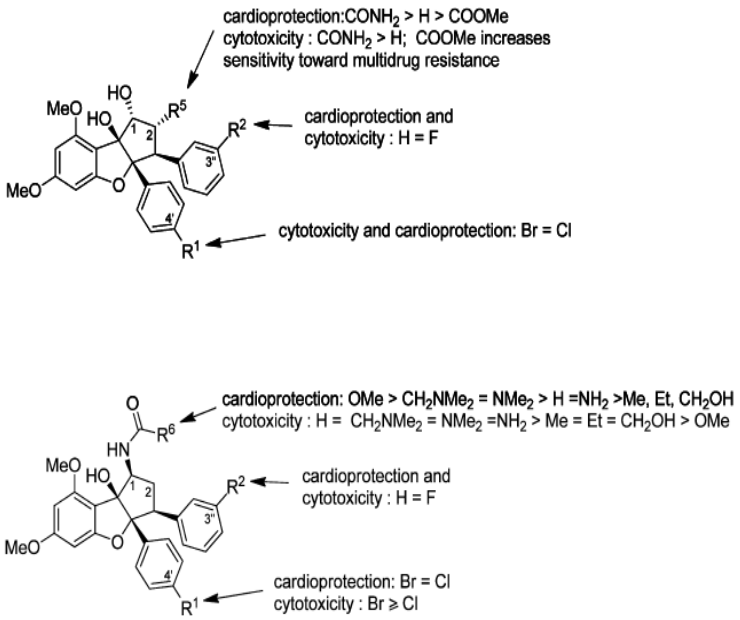


Figure 5. Summary of the structural requirements of flavaglines for cardioprotection and cytotoxicity on cancer cells.

10069 dx.doi.org/10.1021/jm301201z | J. Med. Chem. 2012, 55, 10064−10073

Integrin : target has been shown to be an effective approach for anti-cancer therapy。Disintegrins are the peptide isolated from snake that avidly attach to human integrin.Snake venom-derived peptide vicrostatin+ contotrostatin，增强 13 倍的 binding affinity to $\alpha 5 \beta 1$，對動物腫瘤模式，有相同的抗癌效果。

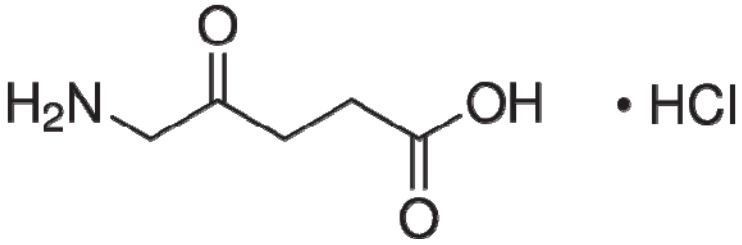
日本 SBI Pharmaceuticals 公司 Dr. Tohru Tanaka 特別介紹 5-aminolevulinic acid(5-ALA，五胺基酮戊酸，圖二十)，它被認為是"the root of energy"，它是一種天然胺基酸，也是血色素(heme)與 chlorophyll 的前趨物，可以由藉由發酵大量產生，5-ALA 為自然的血鐵前驅物質，經由血色素代謝過程，細胞會將 5-ALA 代謝成原紫質環 IX(Protoporphyrin IX; PPIX)，PPIX 為光感應 物質，在特殊藍光激發下會產生紅色螢光。臨床實驗證實，投予適量的 5-ALA 於第三、四級惡性腦瘤患者，腫瘤細胞會堆積 PPIX，經由 藍光手術顯微鏡照射後，腫瘤細胞會呈現紅色螢光，有助於醫師清除腦腫瘤。

德國醫藥團隊已成功研發出以 5-ALA 為有效成分的新藥「格立藍; Gliolan」，經由第三期臨床試驗更證明經由此藥物的協助可以有 效延長病人存活率，並獲得歐盟同意上市。病人在手術麻醉前 2-4 小時口服用藥，藥品中所含的 5-ALA 被癌細

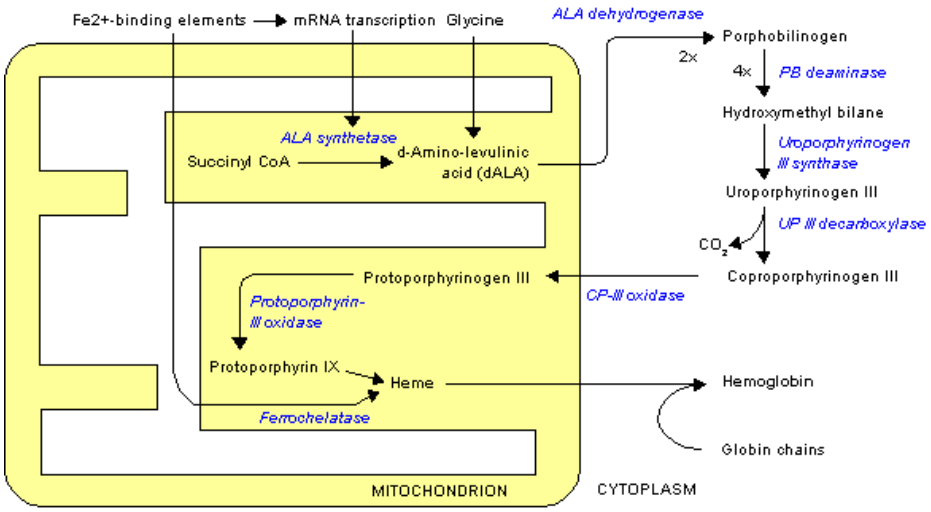
胞高度吸收後經由代謝轉換為 PPIX，手術時腫瘤細胞以藍光激發呈紅色螢光有助於腫瘤切除。

5-ALA 的其它應用，5-ALA-PDT 可以選擇性殺癌細胞，但對正常細胞沒有影響。由於癌細胞主要利用醣解作用(glycolysis)，不會進一步利用 TCA 來獲得能量，投予 5-ALA，會使癌細之乳酸(lactate)堆積，沒有足夠 NADH，可以將 3 鐵離子還原成 2 價鐵離子，使細胞無法進一步合成 protoporphyrin(PPIX)(圖二十一)。外加 5-ALA 到正常細胞，合併投予 sodium Ferrous citrate (SFC)，可以明顯增加血色素的產生。日本已將 5-ALA 當作豬與魚飼料之合法添加物，以預防貧血。

日本也開始在糖尿病人身上測試口服 5-ALA 加上 SFC 對血糖量之影響，目前已完成第二階段臨床試驗，發現可以明顯善血糖值，繼續堆動第三期臨床試驗中。



圖二十: 5-ALA 化學結構



圖二十一: Heme synthesis。部份反應在細胞質進行，黃色區塊代表粒腺體內之反應。(本圖引自 Wikipedia)

三、 心得

(一) 會議特色

第十二屆 IDDST-2014 會議在大陸蘇州舉行，會議聚焦新藥研發，共有約四百位來自世界各地之學者專家及生技產業界負責人或研發主管參加。大會開幕之前，與會人員在會場外之合影如圖二所示。

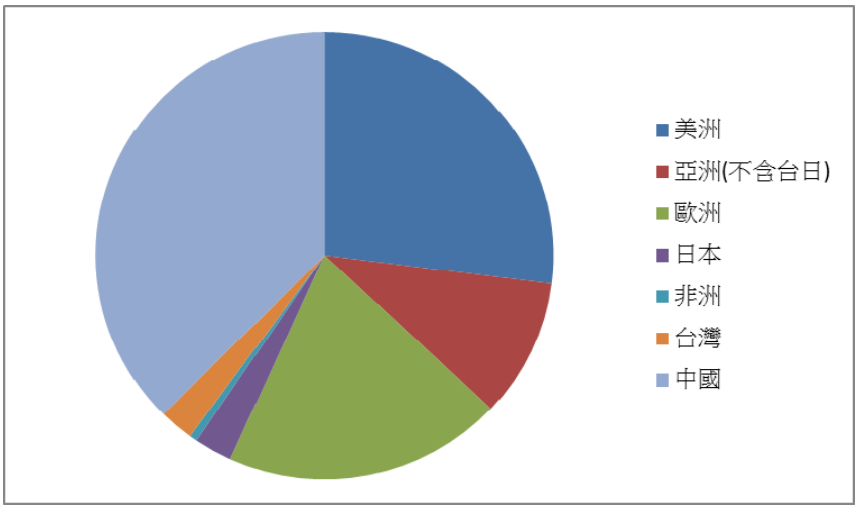
大陸國家外國專家國外信息研究所所長陳基北先生在開幕式致詞時指出，生技醫藥產業是大陸七大戰略產業之一，在古城蘇州辦理新藥發展研討會，對話新藥之發展，格外有意義，希望能建立雙贏策略(win-win results)。蘇州常務副市長周偉先生表示，醫藥產業是蘇州四大產業之一，蘇州設有生技園區，目前約有四千多家 Biotech company 進駐，且都有很好之成績，本次會議希望能促進更多國內外合作之議題與機會，共創美好未來。

本屆大會之出席人數約有四百多位(不含工作人員)，分別來自 37 個國家及區域。分析國別或區域別(圖三)，美國(含加拿大)27%，歐洲 20%，中國 37%，其它為亞洲及非洲等地(台灣有 9 位)之研發人員與業者出席會議，顯見歐美人士對大陸生技市場十分重視。

本次會議亦見許多年輕學子擔任 Volunteer，原來她/他們都是蘇州市的研究生，希望藉由參與此次的服務能更理解國際藥物研發及大陸生技製藥發展之現況，即使大會沒給食宿，但能免費參與此一國際型研討會，他們即很珍惜。

第十二屆國際新藥發明科技年會來自世界各地的研究人員參加，主要包含學、研界之教授與研究人員、產業界之負責人等，交流內容聚焦於藥物發展之國際趨勢、現有研發及未來重要方向。整體而言，短時間可獲得極為重要資訊，提供相關領域的產學研單位參考，後續可注意其會議的發展。

圖二、2014IDDST 與會人員合影



圖三: 本次出席大會人員之國別分佈(不含工作人員)

圖四: 大會之開幕式

(二) 項目對接平台

11 月 19 日下午，大會特別辦了一場項目對接(match-making)和洽談展區，由蘇州市人才工作領導小組辦公室、蘇州市人力資源和社會保障局及百奧黍國際會議有限公司共同主辦，提供想在國內外尋求技術與產合作的企業及個人項目展示、中小企業技術和新產品信息介紹、招商，中國地區政府招商團對本地創業環境及優惠政策的推介、醫藥育成中心和基地代表團項目聯展、專利展覽。大約有一百位出席本次招商會議，主辦單位希望能邀請海外高科技人才及蘇州生物醫藥企業及科研機構參與，注入更多資金與人才，介紹蘇州市就業、創業政策以及人才需求情形，以及大陸提供的創業優惠政策等。(圖二十二)

大會也安排目前在美國的大學任教的郝際軍博士介紹以斑馬魚為平台的全新藥物研發系統。斑馬魚的胚胎是一項很重要的脊椎動物藥物篩選平台，適合用來研究毒性驗(包括 genetics, embryology, development, and cell biology)，斑馬魚胚胎的優點是易於照顧及給藥，短的生殖週期，身體透明(可以肉眼觀察器官或細胞之變化)。另外，亦請美國 Ascendia 製藥公司 CEO 黃敬軍博士介紹有關心血管病和中樞神經醫藥產品。

圖二十二: Project Matchmaking

四、建議事項

1. 大陸生技市場受到全球人士之關注，核醫亦急起直追，發展快速，應鼓勵透過學術活動，觀摩與了解大陸在核醫方面之發展，對國內核醫發展有很大的幫助。由本屆大會之出席人數(370 位，不含工作人員)進行分析，美國(含加拿大)27%，歐洲 20%，中國 37%，其它為亞洲及非洲等地(台灣有 9 位)之研發人員與業者出席會議，顯見歐美人士對大陸生技市場十分重視。2014 兩岸核醫交流會中，亦可見大陸對於核醫之重視，投入儀器與藥物之發展，本所應注意其發展，建立兩岸之良好互動。
2. 提供優質之環境，讓我國之生技人才得以施展其長處，共創我國生技之榮景: 生技是江蘇四大重點業之一，廣設生技工業園區，以吸引外商及大陸旅外抖技人士洄流，本次研討會除了國外學者與業界之發表論文外，亦安排許多大陸之生技製藥業者報告他們的新藥開發現況及技術服務能力，大陸新興生技業者大都與歐美的大學院校合作，深入各個領域，共同進行新藥之開發，並提供各種技術服務(藥物篩選與臨床試驗申請等)。我國每年培育相當多之生技醫藥尖研究人才，應該這些人才有機會施展其長才(就業機會與創業環境)，共創我國生技產業之榮景。
3. 落實科技技術與專業知識紮根，應善用所內外之各項資源，結合各領域之人才，開創核醫與生技應用新氣象: 我國政府亦十分重視生技產業，推出鑽石行動方案，國內生技製藥業界大多著眼於短期可回收之利潤，少數業者從事新藥開發，其它則多從事短期即可回收之產品之開發，新藥開發技術仍未深根。每年我國皆培育出許多優秀之博士生，他們正是國家之尖端生技人才，政府應提供更好更有利的措施，結合生技產業與人才與技術，我國的生技產業才有競爭力。所內有許多優秀研發人才，核研所積極推動奠基計畫，期待由年輕同仁提出研發主題，進行研究探討，為本所提供新藥物發展的平台，未來亦當促進國際合作與交流，在創新性新藥研究中得到最新的突破。

附件一

Therapeutic Evaluation of Isotope-labeling PLGA-Microsphere in Hepatocellular Carcinoma Animal Model

Abstract

The aim of this study is to establish a new biodegradable drug delivery system for hepatoma embolization brachytherapy.PLGA (poly-lactic-co-glycolic acid) was chosen as the material to make the biodegradable microsphere. The characteristics of PLGA-microsphere were identified by FTIR, NMR, SEM and size analyzer. PLGA-microspheres were further modified and labeled with $^{111}InCl_3$. SD rat implanted with N1S1 hepatoma cell line was used as the animal model evaluating the targeted potential of ^{111}In-PLGA- microsphere via transarterial embolization.

The radiochemical purity of ^{111}In-PLGA-microsphere was more than 90% and kept stable for one week in serum. Nano-SPECT/CT images and biodistribution data of SD rats post-injected with ^{111}In-PLGA-microsphere showed that most of radioactivity accumulated in the tumor and liver tissues. The blood sampling data from tail veins of SD rats also showed that less than 0.1%of radioactivity could be detected.

We suppose that the highly-uniformed PLGA-microspheres with isotope labeling have great potential to be applied in the hepatoma therapy.

圖三: 大會手冊

圖四:大會手冊內之發表論文頁面

附件二 大會議程

Program

Time: November 18-20, 2014
Venue: Tongli Lakeview Hotel (TLH), Suzhou, China

Registration
Time: 09:00-22:00, November 17, 2014 (Monday); Place: Registration Desk, 1st Floor, No.1 Building
Time: 08:00-18:00, November 18, 2014 (Tuesday); Place: Registration Desk, 1st Floor, No.2 Building

Group Photo
Time: 08:20-08:30, November 18, 2014 (Tuesday); Place: Lakeside Ecogarden Plaza

Opening Ceremony
Time: 09:00-09:30, November 18, 2014 (Tuesday); Place: Laurel International Ballroom, 2nd Floor, No.2 Building

Keynote Forum
Time: 09:30-12:05, November 18, 2014 (Tuesday); Place: Laurel International Ballroom, 2nd Floor, No.2 Building

Moderator ***Dr. Guo-Ping Zhou,*** Professor and Senior Principal Investigator, Gordon Life Science Institute, USA

09:30-09:35 **Moderator**
09:35-10:05 ***Title:*** *SGLT2 Inhibitors for the Treatment of Type 2 Diabetes – A Promising New Class*
Dr. Michael Mark, Vice President, Boehringer Ingelheim Pharma GmbH & Co. KG, Germany
10:05-10:35 ***Title:*** *The Challenge of Turning Genomic Medicine into Practice*
Dr. Patrice P. Deneflе, Associate Professor, Paris Descartes University; Senior Partner & Co-founder, MedBioMix Partners, France
10:35-11:05 ***Title:*** *Biopharmaceutical Manufacturing: Where Do We Come from, Where are We Going?*
Dr. Alain Bernard, Vice President, UCB Pharma SA, Belgium
11:05-11:35 ***Title:*** *The Future of Small Molecule Research*
Dr. Hans-Joachim Bohm, Global Head of Small Molecule Research, Roche, Switzerland
11:35-12:05 ***Title:*** *Transforming Innovation in Drug Discovery through Collaboration and Partnership*
Dr. Tao Guo, Vice President, WuXi AppTec, China

Stream 1: National New Drug R & D Policy and Market Trend
Time: 13:30-15:15, November 18, 2014 (Tuesday); Place: Paris VIP Room 1, 1st Floor, No.2 Building

Chair ***Dr. Lars Ettarp,*** President, The International Federation of Psoriasis Associations (IFPA), Sweden

13:30-13:35 **Chair's Introduction**
13:35-14:00 ***Title:*** *IFPA's Work for the Worldwide Recognition of Psoriasis as a Serious Non Communicable Disease*
Dr. Lars Ettarp, President, The International Federation of Psoriasis Associations (IFPA), Sweden
14:00-14:25 ***Title:*** *Market Access: How to Bridge R & D with Commercialization*
Dr. Sandeep Duttagupta, Vice President, CBPartners, USA
14:25-14:50 ***Title:*** *Integrated Signal Detection and Patient Centric Risk Management Process throughout the Product Life Cycle*
Dr. Islah Ahmed, Medical Safety and Risk Management Lead, Johnson & Johnson Consumer, USA
14:50-15:15 ***Title:*** *US FDA's Expedited Pathways for New Drug/Biologic Development: Uncovering the Journey*
Dr. Partha Roy, Principal Consultant, PAREXEL International, USA

Stream 2: Breaking Research of Drug Discovery Biology

Session 201: Molecular/Cell Biology and Synthetic Biology in Drug Discovery
Time: 13:30-16:45, November 18, 2014 (Tuesday); Place: Jade Room 1, 1st Floor, No.2 Building

Chair ***Dr. K. K. Jain,*** CEO, Jain PharmaBiotech, Switzerland

13:30-13:35 **Chair's Introduction**
13:35-14:00 ***Title:*** *Nitric Oxide Inhibits Proliferation and Differentiation of Multipotent Vascular Stem Cell without Causing Cell Death*
Dr. Dillip K. Mohanty, Professor, Central Michigan University, USA
14:00-14:25 ***Title:*** *PAMAM-Graft-PEI Cationic Hybrid Polymers as Gene Delivery Carrier: Synthesis, Characterization and Gene Transfer Mechanism*
Dr. Jianhai Chen, Professor, Southern Medical University, China
14:25-14:50 ***Title:*** *Role of Synthetic Biology in Drug Discovery*
Dr. K. K. Jain, CEO, Jain PharmaBiotech, Switzerland
14:50-15:15 ***Title:*** *Epigenetic Regulation in the Brain after Spinal Cord Injury*
Dr. Sung Hoon Kim, Director, Yonsei University Wonju Colleage of Medicine, South Korea

15:15-15:30 **Coffee Break**

15:30-15:55 ***Title:*** *Beryllium, the New Model for Collaborative Drug Discovery*
Dr. Dalia Cohen, Head of Research, Beryllium, USA

15:55-16:20 ***Title:*** *Discovery of Potential Drugs for Neurodegenerative Diseases*
Dr. Chin-Kun Hu, Research Fellow, Institute of Physics of Academia Sinica, Taiwan
16:20-16:45 ***Title:*** *Chronotherapeutics: Considering Circadian Biology in Drug Discovery*
Dr. Andrew Chuanyin Liu, Associate Professor, The University of Memphis, USA

Session 202: Oncology in Drug Discovery
Time: 08:30-10:15, November 19, 2014 (Wednesday); Place: Jade Room 1, 1st Floor, No.2 Building

Chair ***Dr. Wenzhi Tian,*** President & CEO, Huabo Biopharm Co., Ltd., China

08:30-08:35 **Chair's Introduction**
08:35-09:00 ***Title:*** *Targeting Mutant p53 in Human Cancers: Challenges and Opportunities for Therapy Development*
Dr. Bimal DasMahapatra, Director, Oncoceutics Inc., USA
09:00-09:25 ***Title:*** *Inhibition of Cancer Growth by Curcumin – New Results Embedded in a Literature Surveying*
Dr. Gerd Birkenmeier, Professor, University of Leipzig, Germany
09:25-09:50 ***Title:*** *A Novel Bi-functional Protein with Strong Anti-tumor Activity*
Dr. Wenzhi Tian, President & CEO, Huabo Biopharm Co., Ltd., China
09:50-10:15 ***Title:*** *Rational Design of a Snake Venom-derived Peptide with Improved Integrin Binding Affinity: A Novel Recombinant Peptide as Cancer Therapeutic*
Dr. Francis S. Markland, Professor, University of Southern California, USA

Session 203: Neuroscience and Drug Discovery
Time: 10:25-12:10, November 19, 2014 (Wednesday); Place: Jade Room 1, 1st Floor, No.2 Building

Chair ***Dr. Antonia F. Stepan,*** Principal Scientist, Pfizer Worldwide Research & Development, USA

10:25-10:30 **Chair's Introduction**
10:30-10:55 ***Title:*** *What are the Prospects of Slowing the Progression of Alzheimer's Disease?*
Dr. Alan M. Palmer, Chief Executive Officer, Cerebroscience Ltd., UK
10:55-11:20 ***Title:*** *Anti-HMGB1 Antibody Therapy for Brain Ischemia, Brain Injury and Neuropathic Pain*
Dr. Masahiro Nishibori, Professor, Okayama University Graduate School of Medicine, Dentistry and Pharmaceutical Sciences, Japan
11:20-11:45 ***Title:*** *The Impact of Oxetane and Bicyclo[1.1.1]Pentane Motifs on Biopharmaceutical Properties - Aγ - Secretase Inhibitor Study*
Dr. Antonia F. Stepan, Principal Scientist, Pfizer Worldwide Research & Development, USA
11:45-12:10 ***Title:*** *TRPV2 Activator 2APB Enhances the Expression of Nerve Growth Factor in Primary Cultured Astrocytes Subjected to Oxygen-glucose Deprivation/Reoxygenation*
Dr. Dan He, Physician, Huazhong University of Science and Technology, China

Session 204: Immunology & Endocrinology in Drug Discovery
Time: 13:30-15:40, November 19, 2014 (Wednesday); Place: Jade Room 1, 1st Floor, No.2 Building

Chair ***Dr. Jun-Li Liu,*** Associate Professor, McGill University Health Centre, Canada

13:30-13:35 **Chair's Introduction**
13:35-14:00 ***Title:*** *Monocytes as Target Cells for Identification of Novel Biomarkers and Targets of Intervention in Metabolic Diseases*
Dr. Paul Holvoet, Head, Katholieke Universiteit Leuven, Belgium
14:00-14:25 ***Title:*** *Endogenous Protein CCN5/WISP2 Promotes Cell Proliferation and Survival in Mouse Pancreatic Islets*
Dr. Jun-Li Liu, Associate Professor, McGill University Health Centre, Canada
14:25-14:50 ***Title:*** *Calcimimetic Drugs and Biomarkers*
Dr. Hansjorg Rothe, Consultant Nephrologist, Klinikum Neumarkt, Germany
14:50-15:15 ***Title:*** *Identification of Resident IL-17-Act1 Signaling Axis as a New Therapeutic Target for Autoimmune Neuroinflammation*
Dr. Zizhen Kang, Professor, Shanghai Jiao Tong University, China
15:15-15:40 ***Title:*** *Alopecia Areata Update*
Dr. Adel Alsantali, Consultant Dermatologist, King Fahd Armed Forces Hospital, Saudi Arabia

Stream 3: Innovation in Drug Targets

Session 301: Targeting Protein Kinase, New Proteases and other Enzymes
Time: 13:30-15:40, November 18, 2014 (Tuesday); Place: Paris VIP Room 2, 1st Floor, No.2 Building

Chair ***Dr. Michael Hennig,*** Vice Director & Head, Roche Innovation Center Basel, Switzerland
Co-Chair ***Dr. Zuping Xia,*** Research Associate Professor, WSU College of Pharmacy, USA

13:30-13:35 **Chair's Introduction**
13:35-14:00 ***Keynote Speech***
Title: *Winning Strategies for Target Selection*
Dr. Michael Hennig, Vice Director & Head, Roche Innovation Center Basel, Switzerland
14:00-14:25 ***Title:*** *DDR1, a Tyrosine Kinase Receptor, is a New Drug Target in Chronic Inflammation and Fibrosis*
Dr. Jean-Claude Dussaule, Professor, UPMC, France
14:25-14:50 ***Title:*** *Challenges and Approaches for Development of Kinase Inhibitor Anti-cancer Agents*
Dr. Shudong Wang, Head, University of South Australia, Australia
14:50-15:15 ***Title:*** *Development of Sphingosine Kinase Inhibitors for Cancer Therapy*
Dr. Zuping Xia, Research Associate Professor, WSU College of Pharmacy, USA
15:15-15:40 ***Title:*** *AMP-activated Protein Kinase Activation Mediates CCL3-induced Cell Migration and Matrix Metalloproteinase-2 Expression in Human Chondrosarcoma*
Dr. Min-Huan Wu, Assistant Professor, Tunghai University, Taiwan

Session 302: PI3K and Ubiquitin Pathway
Time: 15:50-17:10, November 18, 2014 (Tuesday); Place: Paris VIP Room 2, 1st Floor, No.2 Building

Chair ***Dr. Yanping Zhang,*** Professor, University of North Carolina at Chapel Hill, USA

15:50-15:55 **Chair's Introduction**
15:55-16:20 ***Title:****New Insight into the Regulation of P53 by Mdm2 E3 Ubiquitin Ligase*
Dr. Yanping Zhang, Professor, University of North Carolina, USA
16:20-16:45 ***Title:*** *Combinatorial Treatment Strategies for PIK3CA Mutant Tumors*
Dr. Dejan Juric, Director Massachusetts General Hospital, USA
16:45-17:10 ***Title:*** *Nedd4-2 Ubiquitylation of KCNQ1 Potassium Channels*
Dr. Thomas Jespersen, Associate Professor, University of Copenhagen, Denmark

Session 303: Allosteric Modulators and GPCR
Time: 08:30-10:15, November 19, 2014 (Wednesday); Place: Paris VIP Room 2, 1st Floor, No.2 Building

Chair ***Dr. Jorgen Drejer,*** CEO, Saniona AB, Denmark
Co-Chair ***Dr. Yidan Zhao,*** Director, Canadian-Chinese Biomedical & Pharmaceutical Association, Canada

08:30-08:35 **Chair's Introduction**
08:35-09:00 ***Title:*** *Allosteric Ion Channel Modulators as New Effective and Selective Therapeutics*
Dr. Jorgen Drejer, CEO, Saniona AB, Denmark
09:00-09:25 ***Title:*** *PF-04958242: A Novel AMPA Positive Allosteric Modulator (PAM) for the Treatment of Cognitive Deficits Associated with Schizophrenia*
Dr. Nandini Patel, Principal Scientist, Pfizer, Inc., USA
09:25-09:50 ***Title:*** *Molecular and Metabolic Mechanism of Pulmonary Hypertension*
Dr. Yidan Zhao, Director, Canadian-Chinese Biomedical & Pharmaceutical Association, Canada
09:50-10:15 ***Title:*** *Therapeutic Use of Selective Bradykinin B1 Antagonists*
Dr. Henri Doods, Vice President, Boehringer Ingelheim Pharma GmbH & Co. KG, Germany

Session 304: Targeting Cancer Cell Metabolism, Cancer Stem Cell, DNA Damage Repair and Tumor Suppressor Networks
Time: 10:30-12:15, November 19, 2014 (Wednesday); Place: Paris VIP Room 2, 1st Floor, No.2 Building

Chair ***Dr. Jian Wu,*** Professor, University of California, USA

10:30-10:35 **Chair's Introduction**
10:35-11:00 ***Title:*** *Light-activated Reagents for Double-strand DNA Cleavage with Built-in Selectivity for Hypoxic Cancer Tissues*
Dr. Igor V. Alabugin, Professor, Florida State University, USA

11:00-11:25 ***Title:*** *Aberrant Hedgehog Signaling is Responsible for the Highly Invasive Behavior of a Subpopulation of Hepatoma Cells*
Dr. Jian Wu, Professor, University of California, USA
11:25-11:50 ***Title:*** *Multiple Roles of BRIT1/MCPH1 in DNA Damage Response, DNA Repair, and Cancer Suppression*
Dr. Yulong Liang, Instructor, Baylor College of Medicine, USA
11:50-12:15 ***Title:*** *Acute Myeloid Leukemia-derived Exosomes Transform Bone Marrow Niche into Leukemic Niche*
Dr. Ching-Cheng Chen, Assistant Professor, Beckman Research Institute of City of Hope, USA

Session 305: Targeting Cell Apoptosis, Cell Signaling, Cell Cycle
Time: 13:30-16:20, November 19, 2014 (Wednesday); Place: Paris VIP Room 2, 1st Floor, No.2 Building

Chair ***Dr. Cha-Mei Tang,*** President & CEO, Creatv MicroTech, Inc., USA
Co-Chair ***Dr. Bo Liu,*** Associate Professor, Sichuan University, China

13:30-13:35 **Chair's Introduction**
13:35-14:00 ***Title:*** *Development of Novel Anticancer Agents that Target Prohibitins and the Translation Initiation Factor eIF4a*
Dr. Laurent Desaubry, Director, CNRS-Strasbourg University, France
14:00-14:25 ***Title:*** *Isolation, Identification and Clinical Utility of Circulating Tumor Cells and Tumor-associated Cells in Breast Cancer Patients*
Dr. Cha-Mei Tang, President & CEO, Creatv MicroTech, Inc., USA
14:25-14:50 ***Title:*** *Necrotic Inflammation: A Novel Class of Necrosis Inhibitor NecroX-7 with Therapeutic Potential for Necrosis-related Diseases against Ischemic Reperfusion Injury*
Dr. Soon-Ha Kim, Director, LG Life Sciences Ltd., South Korea
14:50-15:15 ***Title:*** *Pim-1 KinaseInhibition and Cancer Drug Discovery in Apoptosis*
Dr. Yi Chen, Associate Professor, Sichuan University, China

15:15-15:30 **Coffee Break**

15:30-15:55 ***Title:*** *Computational Prediction and Experimental Validation of a Novel eEF2K Inhibitor (EI003) Targeting Apoptosis and Autophagy in In Vitro and In Vivo Models of Breast Cancer*
Dr. Bo Liu, Associate Professor, Sichuan University, China
15:55-16:20 ***Title:*** *Medicinal Inorganic Chemistry is Growing Significance in Both Therapeutic and Diagnostic Medicine*
Dr. S. Satyanarayana, Professor, Osmania University, India

Stream 4: Drug Discovery Pharmacology, Toxicology and Pathology (I)
Time: 15:50-17:35, November 18, 2014 (Tuesday); Place: Crystal Room 1, 1st Floor, No.2 Building

Chair ***Dr. James A. Nieman,*** Consultant, Li Ka Shing Institute of Virology (LKSAVI), Canada

15:50-15:55 **Chair's Introduction**
15:55-16:20 ***Title:*** *5-Aminolevulinic Acid (5-ALA) "The Roots of Energy"*
Dr. Tohru Tanaka, Director, Executive Officer & CTO, SBI Phamaceuticals Co., Ltd., Japan
16:20-16:45 ***Title:*** *A Proposed DMPK Screening Paradigm for Discovery of Reversible and Irreversible Drugs*
Dr. Mehran Moghaddam, Head, Celgene Corp., USA
16:45-17:10 ***Title:*** *New Inflammasome Activator in Macrophages Derived from Trichosanthes Kirilowiie*
Dr. Yasuhiro Yoshida, Associate Professor, University of Occupational and Environmental Health, Japan
17:10-17:35 ***Title:*** *A Refined Computational Method to Predict hERG-mediated Drug Cardiotoxicity*
Dr. James A. Nieman, Consultant, Li Ka Shing Institute of Virology (LKSAVI), Canada

Stream 4: Drug Discovery Pharmacology, Toxicology and Pathology (II)
Time: 13:30-17:10, November 19, 2014 (Wednesday); Place: Crystal Room 1, 1st Floor, No.2 Building

Chair ***Dr. Michael J A Walker,*** Emeritus Professor, The University of British Columbia, Canada
Co-chair ***Dr. Enhong Zhong,*** Director, GenScript Inc., USA

13:30-13:35 **Chair's Introduction**
13:35-14:00 ***Title:*** *A Novel Tool for Optimizing Peptide Drugs' Half-life: Membrane Free Plasma Protein Binding Assays*
Dr. Hinnerk Boriss, Chief Executive Officer, Sovicell GmbH, Germany
14:00-14:25 ***Title:*** *Genetic Polymorphisms of UGT-Glucurono-Syltransferase 2B7 in Chinese Healthy Han Population*
Dr. Baoxia He, Clinical Pharmacist, Affiliated Cancer Hospital of Zhengzhou University, China
14:25-14:50 ***Title:*** *The Dangers Inherent in Forgetting Pharmacology and Statistics in Drug Discovery*
Dr. Michael J A Walker, Emeritus Professor, The University of British Columbia, Canada
14:50-15:15 ***Title:*** *Drug Screening Systems with Combination of In Silico Technology on CV and DMPK and In Vitro CV Screening Using iPS Cells*
Dr. Akiyoshi Suganuma, President, Eisai Co., Ltd., Japan

15:15-15:30 **Coffee Break**

15:30-15:55 ***Title:*** *Patient-derived Xenograft (PDX) Tumor Model with Genomic Annotation, a Good Platform for "Mouse Trial" in Oncology Drug Discovery*
Dr. Enhong Zhong, Director, GenScript Inc., USA
15:55-16:20 ***Title:*** *Preclinical Designs/Efficacy Models Supporting Proof of Concept Studies*
Dr. Luana Pesco Koplowitz, President, Chief Medical & Scientific Officer, DUCK FLATS Pharma, LLC., USA
16:20-16:45 ***Title:*** *Serotonin Receptor-structure; Arrangement; Interaction with Endogenous/Exogenous Substances and Serotonin as Mediator of Biphasic Physiological Effects of Nerves and Muscles: Evidence from Chick Rectum Studies*
Dr. Uchechukwu Anastasia Utoh-Nedosa, Lecturer, Nnamdi Azikiwe University, Nigeria
16:45-17:10 ***Title:*** *First-in-Class New Drug: uPA Inhibitor LH-011 against Breast and Pancreas Cancer*
Mr. Xiaoyu Lu, Project Manager, Linkhealth Group, China

Stream 5: Frontier Technology of Drug Discovery

Session 501: Cellular Reprogramming and iPSC Technologies
Time: 13:30-14:25, November 18, 2014 (Tuesday); Place: Jade Room 2, 1st Floor, No.2 Building

Chair ***Dr. Igor Malyshev,*** Professor & Head, Moscow State University and Dentistry, Russia

13:30-13:35 **Chair's Introduction**
13:35-14:00 ***Title:*** *Mechanisms of Macrophage Reprogramming: Implication in Antitumor Biotechnology*
Dr. Igor Malyshev, Professor & Head, Moscow State University and Dentistry, Russia
14:00-14:25 ***Title:*** *Patient-Derived Cell Cultures (PDCC) for Drug Discovery, Personalized Cancer Therapy and Regenerative Medicine*
Dr. Xuefeng Liu, Associate Professor, Georgetown University Medical School, USA

Session 502: Molecular Imaging and Optical Imaging Technologies
Time: 14:45-16:30, November 18, 2014 (Tuesday); Place: Jade Room 2, 1st Floor, No.2 Building

Chair ***Dr. Tsuneo Yano,*** Project Special Manager, SUMITOMO HEAVY INDUSTRIES, Ltd., Japan

14:45-14:50 **Chair's Introduction**
14:50-15:15 ***Title:*** *Albumin Trafficking in Tumour Tissues Measured by MRI: A New Tool to Predict the Distribution of Macromolecular Drugs in Cancer Lesions*
Dr. Fulvio Uggeri, Director, Bracco Imaging SpA, Italy
15:15-15:40 ***Title:*** *Innovative R & D of Therapeutic Antibodies Utilizing PET Molecular Imaging by ^{64}Cu and ^{89}Zr*
Dr. Tsuneo Yano, Project Special Manager, SUMITOMO HEAVY INDUSTRIES, Ltd., Japan

15:40-16:05 ***Title:*** *Imaging Nanoparticle Accumulation: FLIM a Useful Tool for Determining Drug Localisation and Release*
Dr. Renee Whan, Lecturer, University of New South Wales, Australia

16:05-16:30 ***Title:*** *New Gadolinium-based Nano-sized Systems for Magnetic Resonance and Fluorescence Molecular Imaging Applications*
Dr. Alessandro Maiocchi, Research Projects Manager, Bracco Imaging SpA, Italy

Session 503: Nanotechnology in Drug Discovery
Time: 13:30-15:40, November 19, 2014 (Wednesday); Place: Jade Room 2, 1st Floor, No.2 Building

Chair ***Dr. Sushil Sharma,*** Professor, Saint James School of Medicine, The Netherlands
Co-Chair ***Dr. Cathleen Teh,*** Senior Research Fellow, Institute of Molecular and Cell Biology, Singapore

13:30-13:35 **Chair's Introduction**
13:35-14:00 ***Title:*** *Charnoly Body as a Universal Biomarker of Drug Discovery in Nanomedicine*
Dr. Sushil Sharma, Professor, Saint James School of Medicine, The Netherlands
14:00-14:25 ***Title:*** *Thermal Stability and High-temperature Deformation of Tungsten Nanocomposite*
Dr. Solntceva E. S., Head Spetialist, Federal State Unitary Enterprise "Science Research Institute" LUCH, Russia
14:25-14:50 ***Title:*** *A Robust MRI-compatible System to Facilitate Highly Accurate Stereotactic Administration of Therapeutic Agents to Targets within the Brain of a Large Animal Model*
Dr. Bienemann A, Research Fellow, University of Bristol, UK
14:50-15:15 ***Title:*** *Harnessing the Power of Transgenic Zebrafish to Assess the Performance of Nanotechnology Enabled Drug Delivery Vehicles*
Dr. Cathleen Teh, Senior Research Fellow, Institute of Molecular and Cell Biology, Singapore
15:15-15:40 ***Title:*** *A New Iron-oxide Nanoparticle for Tracking T-cells*
Dr. Li Liu, Research Biologist, Carnegie Mellon University, USA

Stream 6: Bio-IT and Data Management in Drug Discovery

Session 601: Biosimulation and in Silico Models, Bioinformatics and Cheminformatics, Laboratory Information Systems
Time: 13:30-15:40, November 18, 2014 (Tuesday); Place: Jade Room 3, 1st Floor, No.2 Building

Chair ***Dr. Ananth Kadambi,*** Sr. Vice President, Rosa & Co. LLC., USA

13:30-13:35 **Chair's Introduction**
13:35-14:00 ***Title:*** *Viewing Structured Compound Data in an Unstructured Way*
Dr. Edmund Champness, Chief Scientific Officer, Optibrium Ltd., UK
14:00-14:25 ***Title:*** *Identification of New Chemical Entities (NCEs) Targeting Multiple Sites of the Hepatitis C Virus*
Dr. James A. Nieman, Consultant, Li Ka Shing Applied Virology Institute (LKSAVI), Canada

14:25-14:50 ***Title:*** *Enabling Research and Development through Informatics*
Dr. Ping Du, Sr. Director, Allergan Inc., USA
14:50-15:15 ***Title:*** *Application of Quantitative System Pharmacology Modeling to Preclinical and Translational Research*
Dr. Ananth Kadambi, Sr. Vice President, Rosa & Co. LLC., USA
15:15-15:40 ***Title:*** *Occuloinformatics: An Advanced Approach of Ocular Biology*
Dr. Prachi Srivastava, Assistant Professor, AMITY University Uttar Pradesh, India

Session 602: Database, Data Integration, Knowledge Management and Informatics Platform for Drug R & D
Time: 16:00-16:55, November 19, 2014 (Wednesday); Place: Jade Room 2, 1st Floor, No.2 Building

Chair ***Dr. Su-Shing Chen,*** Director, University of Florida, USA

16:00-16:05 **Chair's Introduction**
16:05-16:30 ***Title:*** *An Enterprise Informatics Platform Advancing Scientific Collaboration and Technology Adoption in Biological Screening for Drug Discovery*
Dr. André Stephan, Head Business Development, Genedata AG, Switzerland
16:30-16:55 ***Title:*** *Intelligent Drug Discovery for Personalized Medicine*
Dr. Su-Shing Chen, Director, University of Florida, USA

Stream 7: Bioassay and Drug Screening
Time: 08:30-11:20, November 19, 2014 (Wednesday); Place: Crystal Room 1, 1st Floor, No.2 Building

Chair ***Dr. Tomas Mow,*** Head, H. Lundbeck A/S, Denmark

08:30-08:35 **Chair's Introduction**
08:35-09:00 ***Title:*** *Leveraging Novel Technologies for Human iPSC-based Screening*
Dr. Xianmin Zeng, Associate Professor, Buck Institute, USA
09:00-09:25 ***Title:*** *How to Integrate High-content Assay Data for the Prediction of Drug Induced Liver Toxicity as Part of the Screening Strategy in Drug Discovery*
Dr. Tomas Mow, Director, H. Lundbeck A/S, Denmark
09:25-09:50 ***Title:*** *The Powerful Tool for Drug Discovery - High Speed, High Resolution and High Sensitivity Ultra High Performance Liquid Chromatography in Drug Applications*
Mr. Renlei Liang, Hitachi High-Technologies Corporation, China
09:50-10:15 ***Title:*** *3D Co-culturing Live Cell Imaging-based Platforms for Single Element Time Lapse Measurement Drug Screening*
Dr. Mordechai Deutsch, Professor, Bar Ilan University, Israel

10:15-10:30 **Coffee Break**

10:30-10:55 ***Title:*** *High-throughput Screens for Genes and Small Molecules Influencing Human Circadian Rhythms*
Dr. Andrew Chuanyin Liu, Associate Professor, The University of Memphis, USA

10:55-11:20 ***Title:*** *Structural Based Virtual Screening of MDPI Database: Discovery of Structurally Diverse and Novel DPP-IVInhibitors*
Dr. Mymoona Akhtar, Assistant Professor, Hamdard University, India

Stream 8: Omics-Based Drug Discovery Technologies
Time: 13:30-16:20, November 19, 2014 (Wednesday); Place: Paris VIP Room 1, 1st Floor, No.2 Building

Chair ***Dr. Gerard Siest,*** President, ESPT-European Society of Pharmacogenomics and Theranostics, France

13:30-13:35 **Chair's Introduction**
13:35-14:00 ***Title:*** *Human Redoxomics*
Dr. Dominic M. Desiderio, Professor, University of Tennessee Center for Health Science, USA
14:00-14:25 ***Title:*** *Pharmacogenomics of Clopidogrel and other Thienopyridines*
Dr. Gerard Siest, President, ESPT-European Society of Pharmacogenomics and Theranostics, France
14:25-14:50 ***Title:*** *Characterization of Cancer Specific Isoforms Using TCGA Data*
Dr. Jenny Wei, Head, AstraZeneca, China
14:50-15:15 ***Title:*** *Single Cell Genomics Accelerates Next Generation of Drug Discovery*
Dr. Xinghua Pan, Research Scientist & Chief, Yale University School of Medicine, USA

15:15-15:30 **Coffee Break**

15:30-15:55 ***Title:*** *Personalized Medicine - Investigating Both Sides of the Coin*
Dr. Gayane Badalian-Very, Fellow, Harvard University, USA
15:55-16:20 ***Title:*** *Genome-scale Metabolic Models in Cancer Research*
Dr. Francisco J. Planes, Head of Bioinformatics Unit, CEIT (Centro de Estudios e Investigaciones Técnicas), Spain

Stream 9: Bioanalysis & Instrumentation in Drug Discovery
Time: 16:00-17:20, November 18, 2014 (Tuesday); Place: Jade Room 3, 1st Floor, No.2 Building

Chair ***Dr. Karol Jackowski,*** Head, Warsaw University, Poland

16:00-16:05 **Chair's Introduction**
16:05-16:30 ***Title:*** *Gas-phase NMR Investigations of Medium-sized Molecules*
Dr. Karol Jackowski, Head, Warsaw University, Poland
16:30-16:55 ***Title:*** *The Use of Virtual Screening, DSF and MicroScale Thermophoresis for the Rapid Identification of Fragments Active against MEK1*
Dr. Alexey Rak, Head SDI/LGCR/Sanofi R & D, France

16:55-17:20 ***Title:*** *Chromatographic Separation of Endogenous Level of Hypoxanthine for the Analysis of Allopurinol and Oxypurinol*
Dr. Francois Viel, Bioanalytical Scientific Expert, InVentiv Health Clinical, Canada

Stream 10: New Drug R & D Pipeline for Unmet Diseases

Session 10-1: Cancers/Tumors
Time: 13:30-15:40, November 18, 2014 (Tuesday); Place: Crystal Room 1, 1st Floor, No.2 Building

Chair ***Dr. Sui Xiong Cai,*** SVP & CTO, IMPACt Therapeutics, Inc., China

13:30-13:35 **Chair's Introduction**
13:35-14:00 ***Title:*** *Current Development Status on Heavy Ion Microsurgery*
Dr. Suixiong Cai, SVP & CTO, IMPACT Therapeutics, Inc., China
14:00-14:25 ***Title:*** *An Improved Recombinant Fab-immunotoxin Targeting CD22 Expressing Malignancies*
Dr. Tapan K Bera, Associate Scientist, National Cancer Institute, USA
14:25-14:50 ***Title:*** *An Oncology NCE Drug Pipeline Building and the Translational R & D in China - A Globally Positioned China Operation*
Dr. Ming Guo, Co-founder & COO, Ascentage Pharma, China
14:50-15:15 ***Title:*** *Therapeutic Evaluation of Isotope-labeling PLGA-microsphere in Hepatocellular Carcinoma Animal Model*
Dr. Tsai-Yueh Luo, Associate Researcher, Institute of Nuclear Energy Research, Taiwan
15:15-15:40 ***Title:*** *Current Development Status on Heavy Ion Microsurgery*
Dr. Kota Torikai, Associate Professor, Gunma University Heavy-ion Medical Research Center (GHMC), Japan

Session 10-2: CNS Diseases
Time: 15:30-16:50, November 18, 2014 (Tuesday); Place: Paris VIP Room 1, 1st Floor, No.2 Building

Chair ***Dr. Roumen Milev,*** Professor, Queen's University, Canada

15:30-15:35 **Chair's Introduction**
15:35-16:00 ***Title:*** *The Clinical Utility of the Human 'Photosensitivity Model' in the Development of New Anti-epileptic Drugs (AEDs)*
Dr. Ronald C. Reed, Professor & Chair, Husson University, USA
16:00-16:25 ***Title:*** *Evaluation of Drugs Fort Mood Disorders: The Role of Polysomnography*
Dr. Roumen Milev, Professor, Queen's University, Canada
16:25-16:50 ***Title:*** *Neurodegenerative Disorder Prevention Using Small Molecules*
Dr. Mahesh Narayan, Associate Professor & Assistant Chairman, The University of Texas at El Paso, USA

Session 10-3: Diabetes and Other Metabolic Disorders (I)
Time: 08:30-11:45, November 19, 2014 (Wednesday); Place: Paris VIP Room 1, 1st Floor, No.2 Building

Chair ***Dr. Christ R. Triggle,*** Professor, Weill Cornell Medical College in Qatar, Qatar

08:30-08:35 **Chair's Introduction**
08:35-09:00 ***Title:*** *Human Pancreatic Beta Cell Lines: Towards the Development of Authentic Human Beta Cells*
Dr. Philippe Ravassard, Director, Brain and Spine Institute (ICM), France
09:00-09:25 ***Title:*** *Targeting SIRT1 and Other SIRTs in Diabetes*
Dr. Christ R. Triggle, Professor, Weill Cornell Medical College in Qatar, Qatar
09:25-09:50 ***Title:*** *TRH and TSA Promote Bone Marrow Stem Cell Differentiation into Islet-like Insulin Positive Cells*
Dr. Luguang Luo, Director, Roger Williams Hospital, USA
09:50-10:15 ***Title:*** *Effect of N-Methyl-D-Aspartate Receptor Antagonist Dextromethorphan on Glycemic Control and Islet-cell Protection in Type 2 Diabetes*
Dr. Thomas Meissner, Deputy Director, University Children's Hospital Duesseldorf, Germany

10:15-10:30 **Coffee Break**

10:30-10:55 ***Title:*** *The Role of Leucine Rich* A*-2-Glycoprotein-1 in Diabetes-related Vascular Complications*
Dr. Xiaomeng Wang, Assistant Professor, Nanyang Technological University, Singapore
10:55-11:20 ***Title:*** *mir34/: A Novel Therapeutic Target for Diabetes*
Dr. Hong Ding, Assistant Professor, Weill Cornell Medical College in Qatar, Qatar
11:20-11:45 ***Title:*** *The Drugability Study of a Novel AMPK Activator DZ-0609 in T2DM with NAFLD*
Ms. Wei Wu, Senior Engineer, Hainan Deze Drug Research Co.,Ltd., China

Session 10-3: Diabetes and Other Metabolic Disorders (II)
Time: 08:30-10:15, November 20, 2014 (Thursday); Place: Paris VIP Room 1, 1st Floor, No.2 Building

Chair ***Dr. Ana I. Esquifino,*** Professor, Universidad Complutense, Spain

08:30-08:35 **Chair's Introduction**
08:35-09:00 ***Title:*** *24-h Changes in Metabolic Hormones in Hig-fat Diet Induced Obesity, Associated with Peripheral Resistance to Insuline*
Dr. Ana I. Esquifino, Professor, Universidad Complutense, Spain
09:00-09:25 ***Title:*** *Modulation of PCSK9-LDLR Axis by CETP Inhibitors*
Dr. Jingwen Liu, Principal Investigator, Palo Alto Health Care System, USA

09:25-09:50 ***Title:*** *Ginsenoside Rb1 Exerts its Anti-hyperglycemic Action by Increasing Insulin Sensitivity*
Dr. Ling Shen, Scientst, University of Cincinnati, USA
09:50-10:15 ***Title:*** *Regular Consumption of Sri Lankan BOPF Grade Black Tea (Camellia Sinensis L.) may be a Potential Oral Hypoglycaemic, Anti-hyperglycaemic and Anti-diabetic Beverage*
Dr. Ranjith W. Abeywickrama, Deputy Director, Sri Lanka Tea Board, Sri Lanka

Session 10-4: Infection
Time: 13:30-17:30, November 19, 2014 (Wednesday); Place: Crystal Room 3, 1st Floor, No.2 Building

Chair ***Dr. Michael B. Mathews,*** Chair & Professor, Rutgers New Jersey Medical School, USA

13:30-13:35 **Chair's Introduction**
13:35-13:55 ***Keynote Speech***
Title: *Targeting USP18 as a Potential Therapy to Boost Interferon Anti-HCV Activity*
Dr. Limin Chen, Affiliated Scientist, University of Toronto, Canada
13:55-14:15 ***Title:*** *Drug-induced Apoptosis: A Novel Strategy for Antiviral Therapy Validated with HIV-1*
Dr. Michael B. Mathews, Chair & Professor, Rutgers New Jersey Medical School, USA
14:15-14:35 ***Title:*** *The Approved Pediatric Drug Suramin Identified as a Clinical Candidate for the Treatment of EV71 Infection - Suramin Inhibits EV71 Infection in Vitro & in Vivo*
Dr. Ralf Altmeyer, Director General, Institut Pasteur Shanghai, Chinese Academy of Sciences, China
14:35-14:55 ***Title:*** *Novel Quorum-quenching Agents Promote MRSA Wound Healing and Sensitize MRSA to* β*-Lactam Antibiotics*
Dr. Menachem Shoham, Associate Professor, Case Wester Reserve Univeristy, USA
14:55-15:15 ***Title:*** *Oral Chemotherapeutic Strategy for Human African Trypanosomiasis*
Dr. Michael Zhuo Wang, Assistant Professor, The University of Kansas, USA

15:15-15:30 **Coffee Break**

15:30-15:50 ***Title:*** *The Changing Epidemiology of Antimicrobial Resistance in China from 1998 to 2012*
Dr. Yuan Lv, Deputy Director, Peking University First Hospital, China
15:50-16:10 ***Title:*** *Optimal Designs of an HA-based DNA Vaccine against H7 Subtype Influenza Viruses*
Dr. Shixia Wang, Associate Professor, University of Massachusetts Medical School, USA

16:10-16:30 ***Title:*** *Discovery of MK-8742: An HCV NS5A Inhibitor with Broad Genotype Activity*
Dr. Bin Hu, Senior Director, WuXi AppTec Co., Ltd., China
16:30-16:50 ***Title:*** *Development of an Anti-flu Active Modified Nucleoside Based on the Different Substrate Selectivity Between Viral Nucleic Acid Polymerases and Human Nucleic Acid Polymerases*
Dr. Hiroshi Ohrui, Professor, Yokohama College of Pharmacy, Japan
16:50-17:10 ***Title:*** *Occurrence and Dynamic Distribution of Anti-influenza Drugs, Oseltamivir and Its Active Metabolite (Oseltamivir Carboxylate) in the Yodo River, Japan, during Influenza Outbreak*
Dr. Takashi Azuma, Assistant Professor, Osaka University of Pharmaceutical Sciences, Japan
17:10-17:30 ***Title:*** *Drug Resistance in Mycobacterium Tuberculosis*
Dr. Said H. Abbadi, Head, Taif University, Saudi Arabia

Session 10-5: Pain
Time: 16:00-17:20, November 19, 2014 (Wednesday) ; Place: Jade Room 1, 1st Floor, No.2 Building

Chair ***Dr. Yong X. Wang,*** Head, Shanghai Jiao Tong University King's Lab, China

16:00-16:05 **Chair's Introduction**
16:05-16:30 ***Keynote Speech***
Title: *Spinal Microglial GLP-1 Receptor/*β*-Endorphin Analgesic Pathway and the Tibetan Herbal Painkiller Lamiophlomis Rotata*
Dr. Yong X. Wang, Head, Shanghai Jiao Tong University King's Lab, China
16:30-16:55 ***Title:*** *Amitriptyline Use in Pain Treatment: Safety and Pain Modulation with an Old Drug*
Dr. Ricardo Cunha, Professor, Rio de Janeiro Federal University, Brazil
16:55-17:20 ***Title:*** *Botox Intradermal Injection on Diabetic Neuropathic Foot Pain*
Dr. Likai Huang, Clinician, Taipei Medical University Shuang-Ho Hospital, Taiwan

Session 10-6: Bone Diseases and Neglected Diseases
Time: 10:50-12:10, November 20, 2014 (Thursday); Place: Paris VIP Room 1, 1st Floor, No.2 Building

Chair ***Dr. Hee-Jeong Im Sampen,*** Professor, Rush University Medical Center, USA

10:50-10:55 **Chair's Introduction**
10:55-11:20 ***Title:*** *Plasmapheresis for Fluminant Wilson's Disease*
Dr. Klaus Gutfreund, Associate Professor, University of Alberta, Canada
11:20-11:45 ***Title:*** *Axonal Outgrowth Augments Osteoarthritic Knee Joint Pain Independent of Cartilage Degeneration*
Dr. Hee-Jeong Im Sampen, Professor, Rush University Medical Center, USA
11:45-12:10 ***Title:*** *The Biomechanical Study and Clinical Application of the Plate Fixation Systems for High Tibial Osteotom*
Dr. Su-Yang Hwa, Attending Physician, Tri-Service General Hospital, Taiwan

Stream 11: Biotherapy and Bioprocessing
Time: 08:30-12:30, November 20, 2014 (Thursday); Place: Crystal Room 1, 1st Floor, No.2 Building

Chair ***Dr. Jessie H.-T. Ni,*** CSO, Irvine Scientific, USA
Co-Chair ***Dr. Michael Li,*** Founder, RJ Bioprocess, China

08:30-08:35 **Chair's Introduction**
08:35-09:00 ***Title:*** *Novel Human Monoclonal Antibody and Cancer Therapy Development*
Dr. Bin Liu, Professor, University of California at San Francisco, USA
09:00-09:25 ***Title:*** *Development and Optimization of Chemically-defined Media for Cell-based Vaccine Production, from MDCK and Vero to Major Immune Cells*
Dr. Jessie H.-T. Ni, CSO, Irvine Scientific, USA
09:25-09:50 ***Title:*** *Monomeric fc (mfc)-Fusion Proteins Containing Peptide Mimetic Inhibitors as Novel Therapeutics for Respiratory Viruses*
Dr. James B. Mahony, Professor, McMaster University, Canada
09:50-10:15 ***Title:*** *Antibody Therapy Targeting Tumor Microenvironment for the Treatment of Cancer*
Dr. Xueming Qian, Chairman & CEO, MabSpace Biosciences Co., Ltd., China

10:15-10:25 **Coffee Break**

10:25-10:50 ***Title:*** *A Brief Review of the Cutting-edge Technology in Downstream Bioprocessing of Biopharmaceuticals*
Dr. Michael Li, Founder, RJ Bioprocess, China
10:50-11:15 ***Title:*** *Direct Conversion of Pluripotent Human Embryonic Stem Cells into Functional Human Neuronal or Cardiomyocyte Cell Therapy Derivatives for Regenerative Medicine*
Dr. Xuejun H Parsons, President, San Diego Regenerative Medicine Institute & Xcelthera INC, USA
11:15-11:40 ***Title:*** *Development of New Strategies for Treatment of Rheumatoid Arthritis Based on the Etiology*
Dr. Kuniaki Terato, Founder & Director, Chondrex Inc., USA
11:40-12:05 ***Title:*** *Efficacy and Safety of Epratuzumab in Patients with Systemic Lupus Erythematosus*
Dr. J. Shao, Medical Director, UCB Pharma, China
12:05-12:30 ***Title:*** *Effects of Vedolizumab Induction Therapy in Patients with Crohn's Disease in Whom Tumor Necrosis Factor Antagonist Treatment Failed*
Dr. Milan Lukas, Medical Director, Charles University, Czech Republic

Stream 12: Traditional Therapies and Natural Products
Time: 13:30-17:10, November 18, 2014 (Tuesday); Place: Crystal Room 2, 1st Floor, No.2 Building

Chair ***Dr. Ning-Sun Yang,*** Professor, Academia Sinica, Taiwan

13:30-13:35 **Chair's Introduction**
13:35-14:00 ***Title:*** *Effect of Anti-inflammatory and Anti-cancer Activities of Phytochemicals from Traditional Chinese Medicines: Revealed by Omics Approaches*
Dr. Ning-Sun Yang, Professor, Academia Sinica, Taiwan
14:00-14:25 ***Title:*** *Modulation of the Endocannabinoid System by Natural Products: Potential Therapeutic Application for Neuropsychiatric Disorders*
Dr. Abir El-Alfy, Associate Professor, Chicago State University, USA
14:25-14:50 ***Title:*** *A New Fluorinated Natural Product from Ghana, African*
Dr. Hai Deng, Lecturer, University of Aberdeen, UK
14:50-15:15 ***Title:*** *Networking the Active Compounds from Chinese Medicines and Molecular Targets in Mammalian Cells for Drug Discovery in the Post-genomic Era*
Dr. Jianhui Rong, Assistant Professor, University of Hong Kong, China

15:15-15:30 **Coffee Break**

15:30-15:55 ***Title:*** *Hair Growth Promotion Acivity and Its Mechanism of Polygonum Multiflorum*
Dr. Jie Yu, Director, Yunnan University of Traditional Chinese Medicine, China
15:55-16:20 ***Title:*** *Nanoencapsulation of Traditional Chinese Medicine Derived Gastrodin and Its Effects on Curing Central Nervous System Diseases*
Dr. Yi Wang, Assistant Professor, The Hong Kong Polytechnic University, China
16:20-16:45 ***Title:*** *Anti-liver Cancer Drug Candidate Origined from Natural Product Fanchinoline with Novel Machanism of Action*
Dr. Wei-Dong Pan, Professor, Chinese Academy of Sciences, China
16:45-17:10 ***Title:*** *Investigation into the Anti-Malarial Activity of the Aqueous Leaf Extract of Synclesia Sabrida Meirs*
Mr. Anowi Chinedu Fredrick, Lecturer, Nnamdi Azikiwe University, Nigeria

Stream 13: Young Investigator Forum
Time: 11:15-12:35, November 20, 2014 (Thursday); Place: Paris VIP Room 2, 1st Floor, No.2 Building

Chair ***Ms. Liyuan Wang,*** Ph.D. Student, University of New South Wales, Australia

11:15-11:20 **Chair's Introduction**
11:20-11:45 ***Title:*** *Time-lapse Imaging of Angiogenic Cell Motility of Human Umbilical Vein Endothelial Cells by FRET*
Ms. Liyuan Wang, Ph.D. Student, University of New South Wales, Australia
11:45-12:10 ***Title:*** *The Role of the Sodium Current Complex in Cardiac Arrhythmias*
Mr. Lei Yuan, Ph.D. Student, The University of Copenhagen, Denmark
12:10-12:35 ***Title:*** *Genipin-crosslinked Gelatin/Silk Fibroin Hydrogels for Modulating the Behaviour of Pluripotent Cells*
Dr. Wei Sun, University of Trento, Italy

Stream 14: Symposium of Translational Medicine and Key Opinion Leaders (KOL)
Time: 08:30-11:20, November 20, 2014 (Thursday); Place: Paris VIP Room 2, 1st Floor, No.2 Building

Chair ***Dr. Yong-Xiao Wang,*** Professor, Albany Medical College, USA

08:30-08:35 **Chair's Introduction**
08:35-09:00 ***Keynote Speech***
Title: *Drug Development - Past, Present and Future - The Impact of PET Molecular Imaging for Future Drug Development*
Dr. Tsuneo Yano, Project Special Manager, Sumitomo Heavy Industries, Ltd., Japan
09:00-09:25 ***Title:*** *Integrating Big Data into Translational Medicine: The Value of Legacy Data and Open Innovation Networks*
Dr. Patrice P. Denefle, Associate Professor, Paris Descartes University; Senior Partner & Co-founder, MedBioMix Partners, France
09:25-09:50 ***Title:*** *Potential Novel Drugs for Pulmonary Hypertension*
Dr. Yong-Xiao Wang, Professor, Albany Medical College, USA
09:50-10:15 ***Title:*** *Innovation Collaboration in Drug Discovery*
Dr. Mingde Xia, Senior Director, Johnson & Johnson Innovation Center, USA

10:15-10:30 **Coffee Break**

10:30-10:55 ***Title:*** *Molecular Biomarkers Stratifying Diffuse Large B Cell Lymphoma Subgroups for Novel Therapeutics*
Dr. Harris L. Zhang, Executive Director, NANOBIOTEC, LLC, USA
10:55-11:20 ***Title:*** *Strategies for the Development of Anti-radiation and Anti-aging Drugs: An Ambitious Challenge to Translational Medicine*
Dr. Helmut Durchschlag, Academic Director, University of Regensburg, Germany

Stream 15: Symposium of Drug Designology
Time: 08:30-11:50, November 19, 2014 (Wednesday); Place: Jade Room 2, 1st Floor, No.2 Building

Chair ***Dr. Guo-Ping Zhou,*** Professor and Senior Pricipal Investigtor, Gordon Life Science Institute, USA

08:30-08:35 **Chair's Introduction**
08:35-09:05 ***Keynote Speech***
Title: *Use of Novel Computer Aided Drug Design Methods and Structural Biology in the Discovery of Clinical Candidates for Diabetes, Cancer & Marketed Drug for AIDS*
Dr. M. Rami Reddy, CSO & Chairman, Rational Labs Inc., USA
09:05-09:30 ***Title:*** *Computational Drug Design of HDAC-HMGR Dual-action Inhibitors for Prevention and Treatment of Cancers*
Dr. Jung-Hsin Lin, Professor, Academia Sinica, Taiwan

09:30-09:55 ***Title:****The Studies of Coiled-coil Protein Interactions Using NMR Spectroscopy and the Wenxiang Diagrams*
Dr. Guo-Ping Zhou, Professor and Senior Pricipal Investigtor, Gordon Life Science Institute, USA
09:55-10:20 ***Title:*** *Strategies for the Inhibition of Flavin-dependent Thymidylate Synthase: An Antimicrobial Drug Target*
Dr. Irimpan I. Mathews, Staff Scientist, Stanford University, USA

10:20-10:35 **Coffee Break**

10:35-11:00 ***Title:*** *Structure-based Ligand Design to Overcome CYP Inhibition in Drug Discovery Projects*
Dr. Gisela Branden, Assistant Professor, University of Gothenburg, Sweden
11:00-11:25 ***Title:*** *Invention of a Novel, Orally Active and Safe Drug Candidate for Myocardial Protection Acting through Adrenergic Receptor Antagonism*
Dr. Anil K. Saxena, Emeritus Scientist, CSIR-Central Drug Research Institute, India
11:25-11:50 ***Title:*** *Design and Synthesis of Novel CCK2 Receptor Antagonists as Potential Antiulcer Agents*
Dr. Mridula Saxena, Professor & Head, Amity University, India

Stream 16: Symposium of Drug Discovery R & D Outsourcing Service
Time: 13:30-17:35, November 19, 2014 (Wednesday); Place: Jade Room 3, 1st Floor, No.2 Building

Chair ***Dr. Antti Haapalinna,*** Vice President, Orion Corporation Orion Pharma, Finland
Co-Chair ***Dr. Zhengtian Titan Gu,*** Senior Director, Theravance Biopharma US, USA

13:30-13:35 **Chair's Introduction**
13:35-14:00 ***Title:*** *Polar Drugs*
Dr. Andrew B. McElroy, CEO, Eligochem Limited, UK
14:00-14:25 ***Title:*** *Build a Leading Contract Research Organization with Remarkable Core Competences that Impact Client's Portfolio*
Dr. Xuehai Tan, CEO & President , HD Biosciences Co., Ltd., China
14:25-14:50 ***Title:*** *Increase of the Productivity of the Discovery Process by Partnering and Outsourcing*
Dr. Antti Haapalinna, Vice President, Orion Corporation Orion Pharma, Finland
14:50-15:15 ***Title:*** *New Integrated Solution for Drug Discovery*
Dr. Jason Liu, COO & SVP, WuXi AppTec, China

15:15-15:30 **Coffee Break**

15:30-15:55 ***Title:*** *Science and Phase-based Analytical Activities for Successful Drug Development*
Dr. Zhengtian Titan Gu, Senior Director, Theravance Biopharma US, USA

15:55-16:20 ***Title:*** *IP Monetization Strategy and Consideration Points*
Mr. Gregory V. Novak, Managing Partner & CEO, Novak Druce Connolly Bove + Quigg LLP, USA
16:20-16:45 ***Title:*** *U.S. Patent Law & Outsourcing: Things You Need to Know in Advance*
Mr. Thomas M. Saunders, Of Counsel, Novak Druce Connolly Bove + Quigg LLP, USA
16:45-17:10 ***Title:*** *Outsourcing Clinical API to China*
Dr. James J. Chen, CEO, Agno Pharma, USA
17:10-17:35 ***Title:*** *The Virtual Company Concept for Pharmaceutical Research and the Need of Scientist's Management Education*
Dr. Stefan Seeger, Professor, University of Zurich, Switzerland

Stream 17: Symposium of Biosimilar, Biobetter and Generics (I)
Time: 10:25-12:10, November 19, 2014 (Wednesday); Place: Jade Room 3, 1st Floor, No.2 Building

Chair ***Dr. Rafael Mendoza***, Senior Director, Pfizer, China

10:25-10:30 **Chair's Introduction**
10:30-10:50 ***Title:*** *The IBD-BIOM Programme for Discovery of Diagnostic and Prognostic Genomic and Glycomic Biomarkers for inflammatory Bowel Diseases*
Dr. Daryl L. Fernandes, Chief Executive, Ludger Ltd., UK
10:50-11:10 ***Title:*** *The Opportunity with the Emerging Middle Class in Apac and How to Make It Profitable*
Mr. Rafael Mendoza, Senior Director, Pfizer, China
11:10-11:30 ***Title:*** *Biosimilar of Protein Therapeutics*
Dr. Alok Bandyopadhyay, Senior Regulatory Consultant, AB Consulting, USA
11:30-11:50 ***Title:*** *Striking a Strategic Balance to Achieve Biologics In-Particular Biosimilars Business Sustainability for Meddle Biotech Companies*
Dr. Chih Jung Chang, Vice President, EirGenix, Inc., Taiwan
11:50-12:10 ***Title:*** *Biosimilar Regulatory Development and Market Access in Asia*
Mr. Kenny Peng, Managing Director, PharmEng Technology, Canada

Stream 17: Symposium of Biosimilar, Biobetter and Generics (II)
Time: 08:30-11:45, November 20, 2014 (Thursday); Place: Crystal Room 3, 1st Floor, No.2 Building

Chair ***Dr. Jisong Jasmine Cui,*** General Manager & CSO, BioDuro (Beijing) Co., Ltd. & BioDuro (Shanghai) Co., Ltd., China

08:30-08:35 **Chair's Introduction**
08:35-09:00 ***Title:*** *The Use of Biological Function Assays to Measure Comparability in Biosimilars*
Dr. Daniel N Galbraith, CSO, BioOutsource Ltd., UK
09:00-09:25 ***Title:*** *Functional Comparability Study for Biosimilars*
Dr. Renbin Zhao, Director, BioDuro Co., Ltd., China
09:25-09:50 ***Title:*** *Regulatory & Clinical Strategies for Biosimilars Encompassing the Needs of East and West*
Mr. Gerry McGettigan, Director, Kinesys Consulting Ltd., UK

09:50-10:15 ***Title:*** *Strategies for Global Clinical Development for Biosimilars*
Dr. Partha Roy, Principal Consultant, PAREXEL International, USA

10:15-10:30 **Coffee Break**

10:30-10:55 ***Title:*** *Characterization of Biosimilar Anti-cancer Drugs Using Apoptosis Assays in Breast and Colon Carcinoma Cells*
Dr. Subhash Basu, Emeritus Professor, University Of Notre Dame, USA

10:55-11:20 ***Title:*** *Immunogeneicity Study for Antibody Drugs*
Dr. Le Sun, President & CEO, AbMax Biotechnology Co., Ltd., China

11:20-11:45 ***Title:*** *US FDA Regulatory Requirements for Biosimilar, Biobetter and Generics*
Dr. Xiaoxiong (Jim) Wei, Medical Director, Medpace, USA

Stream 18: Symposium of Clinical Trial, Hospital Management and Business
Time: 13:30-17:35, November 18, 2014 (Tuesday); Place: Crystal Room 3, 1st Floor, No.2 Building

Chair ***Dr. Dejun Tang,*** Site Head, Novartis Pharma, China

13:30-13:35 **Chair's Introduction**

13:35-14:00 ***Title:*** *Next Generation Feasibility Analysis: Incorporating Multiple Data Sources to Accelerate the Enrollment Process*
Mr. Otis Johnson, Executive Director, inVentiv Clinical Trial Recruitment Solutions, USA

14:00-14:25 ***Title:*** *Common Mistakes Pharmaceutical Companies Made When Contract out Clinical Trials to CROs*
Dr. Jason Wu, EVP & CMO, WuXi PRA Clinical Research, China

14:25-14:50 ***Title:*** *Quality of Non-inferiority and Equivalence Randomized Trials*
Dr. Dondi dall' Orologio Giovanni, Professor & Director, University of Bologna, Italy

14:50-15:15 ***Title:*** *Bayesian Decision-optimal Interval Designs for Phase I Clinical Trials*
Dr. Suyu Liu, Assistant Professor, The UT MD Anderson Cancer Center, USA

15:15-15:30 **Coffee Break**

15:30-15:55 ***Title:*** *Opportunities and Challenges on Planning Multi-regional Clinical Trials including Asian Countries*
Dr. Dejun Tang, Site Head, Novartis Pharma, China

15:55-16:20 ***Title:*** *Cardiac Safety in the Post E14 Era*
Dr. Timothy Callahan, CSO, Biomedical Systems, USA

16:20-16:45 ***Title:*** *Response Adaptive Randomization in Confirmative Clinical Trials - Claimed Benefits Are Unreal*
Dr. Wenle Zhao, Associate Professor, Medical University of South Carolina, USA

16:45-17:10 ***Title:*** *Best Way of Oncology Trial for Getting Approval*
Mr. Tadashi Fujisawa, CEO, Mebiopharm Co., Ltd., Japan

17:10-17:35 ***Title:*** *Monitoring and Intelligent Analysis of Adverse Drug Reaction*
Dr. Haitang Xie, Director, Anhui Provincial Center for Drug Clinical Evaluation, China

Stream 19: Symposium of Regenerative Medicine and Innovative Medical Materials
Time: 08:30-10:15, November 19, 2014 (Wednesday); Place: Jade Room 3, 1st Floor, No.2 Building

Chair ***Dr. Zhigang Xu,*** Senior Scientist, North Carolina A & T State University, USA

08:30-08:35 **Chair's Introduction**

08:35-08:55 ***Title:*** *New Method for Improvement of Antithrombogenic Properties of Artificial Vascular Implants*
Dr. Uros Cvelbar, Associate Professor, Jozef Stefan Institute, Slovenija

08:55-09:15 ***Title:*** *Recent Achievements in Research and Applications of Magnesium Alloys as Bioresorbable Implant Materials*
Dr. Zhigang Xu, Senior Scientist, North Carolina A & T State University, USA

09:15-09:35 ***Title:*** *Natural Disease Models: The Horse Experience for Regenerative Medicine Strategies*
Dr. Jayesh Dudhia, Senior Lecturer, University of London, UK

09:35-09:55 ***Title:*** *Nanomechanical and Tribological Characterization of the MPC Phospholipid Polymer Photografted onto Rough Polyethylene Implants*
Dr. Na Wang, University of Lyon, France

09:55-10:15 ***Title:*** *Cytocompatible Encapsulation of Individual Living Cells within Artificial Shells*
Dr. Sung Ho Yang, Assistant Professor, Korea National University of Education, South Korea

专场一、生物基础科学与创新药物研究
Chinese Session 1: Basic Biological Science and Innovative Research of Drug Discovery
时间：11月18日下午13:30-16:45；地点：二号楼一楼，翡翠厅4

主席 **张世军博士，**美国弗吉尼亚联邦大学副教授

13:30-13:35 **主席介绍**

13:35-14:00 题目：单细胞基因组加速新一代药物发现
潘星华博士，美国耶鲁大学首席研究科学家

14:00-14:25 题目：CCL3会藉由AMP蛋白激酶调节人类软骨肉瘤细胞释放出基质金属蛋白酶-2进而促使癌细胞转移
吴昊宸博士，台湾东海大学生命科学中心助理教授

14:25-14:50 题目：新型NLRP3炎症体抑制剂以及潜在应用
张世军博士，美国弗吉尼亚联邦大学副教授

14:50-15:15 题目：盘绕线圈式蛋白质相互作用的分子机制
周国平博士，美国戈登生命科学研究所教授

15:15-15:30 **茶歇**

15:30-15:55 题目：研究内皮细胞在体外对诱导血管形成的二维以及三维血管内皮生长因子165浓度梯度的反应特性
王丽媛博士生，澳大利亚新南威尔士大学生物医学工程研究生院

15:55-16:20 题目：新型抗抑郁药物盐酸羟哌吡酮的研发
杨日芳博士，中国军事医学科学院药物研究所副研究员

16:20-16:45 题目：壳聚糖聚合物胶束药物载体的应用研究
陈松伟博士，中国广州拜恩化学科技有限公司研究员

专场二、重大疾病新药研发临床研究及开发工具
Chinese Session 2: New Drug R & D, Clinical Research and Development Tools for Major Diseases
时间：11月19日上午08:30-12:10；地点：二号楼一楼，水晶2

主席 **Dejun Tang博士，**诺华制药主管

08:30-08:35 **主席介绍**

08:35-09:00 题目：生产企业上市后风险管理
董铎博士，中国国家食品药品监督管理总局药品评价中心/国家药品不良反应监测中心副主任药师

09:00-09:25 题目：基于风险的临床试验监察的实践 — 远程实时监察与实地原始资料核查的结合
赵文乐博士，美国南卡罗来纳州医科大学副教授

09:25-09:50 题目：亚洲等计划中的跨区域国家临床试验面临的机遇与挑战
Dejun Tang博士，诺华制药主管

09:50-10:15 题目：非ATP竞争性激酶抑制剂的开发
李进博士，中国成都先导药物开发有限公司董事长及首席执行官

10:15-10:30 **茶歇**

10:30-10:55 题目：单克隆抗体药物克隆表达及其功能的高效筛选技术
赵涛先生，中国南京金斯瑞生物科技有限公司经理

10:55-11:20 题目：抗肿瘤多肽AP25的研究与开发
徐寒梅博士，中国药科大学海洋药学教研室教授

11:20-11:45 题目：智能药物开发工具
陈树新博士，美国佛罗里达大学教授

11:45-12:10 题目：小电导钙激活钾（SK）通道-心房选择性抗心律失常药物新靶点
苑磊博士生，丹麦哥本哈根大学心律失常研究中心