

杨子江-媒体报道

1. 侨报
2. 世博会瑞士馆瑞士华人代表
3. 教育部神州学人
4. Circulation
5. European Heart Journal
6. 辉瑞医学奖媒体报道统计
7. International Innovation



为争奖，有同事歧视他是“非瑞士籍人”

2010年2月，在苏黎世，杨子江和同事Di Santo博士捧起了“研究者”小金人，因其领衔的“干细胞衍生制剂”研究而荣获了心血管领域的辉瑞研究奖。杨子江不仅成为被称为医学奥斯卡的辉瑞研究奖历史上最年轻获奖人之一，也是9年来获此殊荣的第三位中国人。就在这之前不久，杨子江刚刚获得博士学位。

在颁奖礼上，有200多位各界嘉宾出席，30多家瑞士媒体对此进行了报道。获奖之后的杨子江除了高兴，还感到如释重负，此前伴随着获奖喜悦中的一切繁

扰纠纷终于结束了。

2009年末收到获奖通知时，研究小组的成员都没有想到，迎接他们的巨大荣誉还会引出不小的麻烦。“按照评委会的规定，获奖人数为两人。项目领衔人、也就是在发表科学论文时的第一作者必须获奖。”杨子江说。然而，他的一位瑞士同事却对此提出争议，作为第三作者，他要求自己也要被列入获奖名单。

“我们尊重他的要求，于是去和评委会沟通，评委会同意为其出具一张参与研究的证明，但是坚持获奖人不变，因为这无可

厚非。”杨子江说。

让人没想到的是，这位瑞士同事不同意这个解决方案，坚持要求成为获奖人，甚至提出了撤换获奖人的要求。他提出的理由之一是：“作为一个非瑞士籍人，杨子江博士获得一个瑞士大奖的意义不大。”他还在背后写信给评委会和大学部门进行申诉，说其他小组成员背信弃义。

“结果当然是公正的，所有的人都站在我们这边。”杨子江说。“荣誉理应属于所有参与项目的人，但是损人利己的行为我坚决不同意。”



手捧小金人的杨子江称获奖源于“无意”与“兴趣”

“医学奥斯卡奖”最年轻中国获奖人杨子江：

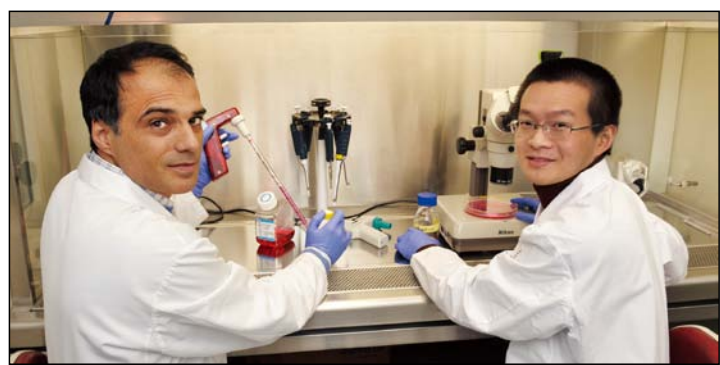
“谁说只有瑞士人才能得瑞士奖”

2010上海世博会瑞士馆的官方宣传杂志Swiss Brand上，将有一段瑞士国际航空公司对一个刚过29岁的中国年轻博士的采访。他的名字叫杨子江。瑞士馆官方宣传杂志选中他，不仅是因为杨子江是一个纯粹的上海人，更因为作为心血管再生生物领域的年轻专家，他不久之前刚刚获得了2010年度的瑞士生物医药研究最高奖项：辉瑞研究奖。

本报记者_卜微沛 发自苏黎世

跨行研究只为兴趣

2003年，杨子江毕业于上海交通大学生物工程专业。2005年，他到了瑞典的乌普萨拉大学攻读分子生物学硕士学位，2006年在瑞典皇家卡罗琳斯卡医学院从事癌症领域研究。2007年后因为出于对干细胞领域的浓厚兴趣而去了瑞士攻读博士。



杨子江（右）和同事Di Santo在实验室

量，提出了这个研发干细胞制剂的设想。”杨子江对记者说，没想到，这一意外的初期结果出人意料地有效。于是，在和小组成员讨论后，杨子江与同事一致决定将精力投入到这项研究。

而在研究当中，辉瑞研究奖对研究的阶段性成就进行了肯定。“最初，我们的项目是针对干细胞移植对心血管病疗效的评估。阴差阳错，因为一些准备工作上的进度延后，我和同事们商

时间进行更深入研究才能获得成熟化的临床方案及产品。”杨子江说，“因为这个项目的意义及巨大前景，瑞士国家自然基金给予了全力的支持，而我本人当然要继续研究下去。我对结果非常乐观。”

杨子江还提到，在实验过程中发现了很多技术及想法方面的不足之处，需要通过和其他领域研究小组的合作来完善。“科研很需要合作。”

“我们现在提出的只是一个概念和方向，未来需要投入更多

■ 新闻链接

瑞士辉瑞研究奖

起始于1991年，是瑞士医学及生物医学领域最权威的奖项。其宗旨是奖励并促进整个瑞士的杰出医学及医药研究。此项研究奖所涵盖的领域包括临床医疗研究以及从事新型疗法研发的基础生物医药研究。如今，在独立的4个科学委员会的评审下，辉瑞基金会每年颁出总额为12万瑞士法郎（约80万元人民币）的4个奖项：1. 心血管学，泌尿学，肾脏学领域；2. 传染学，风

湿病学，免疫学领域；3. 神经学，神经系统紊乱学领域；4. 肿瘤学领域。

作为医药王国瑞士在医学领域最高、影响力最大的奖项，辉瑞研究奖素有“医学奥斯卡”之称。国际著名雕塑家Kurt Laurenz Metzler 专门为此奖设计铸造了名为“研究者”的小铜人雕像，在全球范围限量300座，仅用于颁发给当年的获奖人。其造型寓意为“以人为中心的医学研究”。

干细胞衍生制剂

是由干细胞在一种体外人工模拟的病理环境中分泌出的营养成分制成。科学研究基本上认可了现在的成体干细胞疗法，尤其是在心血管领域，最大的作用是通过释放营养成分来刺激自身的干细胞分化，真正参与到成体转化的干细胞反而很少。因此可以利用注射这类营养成分来替代传统的干细胞移植。

自体干细胞移植的效率很低，最终只有5%左右的细胞

可能在起作用。另外，干细胞移植是一个活体的移植，牵涉到很多不便利的因素，比如保存、长久性等。使用衍生制剂的好处是移植的时候不需要细胞的参与，就没有排斥发生。由于制剂没有活体成分，所以相比细胞保存方便多了。

未来如果能体外获取这些营养成分，就可以做成试剂随时使用。以后的方向也可以完全用人工的方法合成这些成分。这样就能大规模制造了。



2300间华人商铺被强拆 在罗华商数亿欧元灰飞烟灭

4月21日，罗马尼亚尼罗市场遭到管理方强制彻底拆除，2300间华商拥有长期使用权的店铺顷刻间毁于一旦，昔日繁荣的中国城顷刻间不复存在，给华商造成的巨额资产流失达数亿欧元。与此同时，也使当地华商与尼罗市场管理方的矛盾再次升级。

本报记者_彭卡 特约通讯员_郑旭旦 见习记者_刘浩 发自罗马尼亚



曾经繁荣的中国城顷刻间成了一片废墟

短短数小时市场变废墟

自去年底到今年初，罗马尼亚华商集中经营的尼罗市场一直动荡不安，管理方撤物业、警察强行拉货、封店等闹剧持续上演，经历了一系列磨难伤痛后的尼罗市场华商在4月21日再遭致命重创——短短数小时内，市场上近3000多家商户店铺被迅速夷为平地，21世纪初罗马尼亚最繁华昌盛的著名中国城就此永远告别历史舞台。

4月21日下午4时许，尼罗市场管理方不顾法院的通告，私自动用铲车等工具对市场进行拆除，闻讯而来的十几名华商无奈面对眼前的场景，眼睁睁看着自己的私有财产被损毁。

“法院在2月末已经受理这起事件，并且通知双方在6月16日开庭审理此案，而时间还没到，他们竟然先动手，这是什么世道！”华商王博回想起店铺被推倒的场景非常愤怒。店铺强拆当天他闻讯马上来市场，看到大型的作业设备无可奈何。“心疼！愤怒！现场的华商心情都一样，面面相觑，有一些女华商看到废墟后眼泪都要流下来了。”王博说。

为维权上告到欧盟法院

尼罗市场管理方的强拆行为严重损害了华商的利益，这使二者之间的商业矛盾升级为司法纠纷。

管理方曾在2月5日至9日未通知任何市场商户的情况下，对华商店铺进行拆卸，华商及时报警，但并没有得到合理解决，为此他们于2月26日将管理方告上法庭。经历了2月份遭强拆的打击之后，华商以为可以通过法律途径维护自己的合法权益，然而再次被彻底强拆，使得华商已经对管理方彻底丧失了希望。

“这是一场噩梦，可以形容成一场巧取豪夺的策划，管理方如此公然作出挑衅法律的行为，难道就不怕受到司法的严厉制裁吗？”一些华商在议论管理方的行为。如果罗马尼亚国家任凭这样的违法乱纪行为发生，那么外国在罗商人的合法权益何在？这对他们的招商引资铁定造成巨大负面影响。

据悉，4月22日，市场华人维权委员会在中国驻罗使馆人员的建议下，已经向当地辖区警方报案，他们已经在搜集相关证据。

“如果当地法院没有作出什么裁决，我们将不惜上告到欧盟法院。”这是当地华商中兴起的呼声，他们已经做好了充分的准备，维权会正在与相关律师进行紧急商议。

华商急求新生存方式

自1990年华商进入罗马尼亚以来，市场风波一浪高过一浪，最终以夷为平地而落幕，悲剧的最终上演使得广大华商在呼噜维



被查封的尼罗市场仍存放着不少华商货物

权的同时也为将来如何生存做打算。

经历了众多波折之后，当地华商已经充分认识到当前形势，他们转型的几率不是很大，须在原有资源的基础上寻找新出路。有少数华商考虑回国发展，同时有人提议建造自己的市场，这样可以避免管理方的欺凌。

在尼罗市场经商多年的徐波回忆起曾经的市场时，还是有一些不舍。“我们已经在罗马尼亚生活多年，尼罗市场是我们生活的唯一希望，我看着市场建成，也亲眼目睹市场的倒闭直至店铺被强拆，这对我们的打击是致命的，然而我们还是要在罗马尼亚安身立命，新的生存方式及维权意识是我们需要深刻思考的。”徐波说。

“回想尼罗市场的发展进程，这似乎是一个必然的结果。刚刚进驻的时候管理方开出的多种永久性进驻的优惠使得我们沉浸在虚幻的美梦里，然后后来店面的扩张，各种条约的出台，使得我们的权益根本没有得到保障。作为一名利益受损的华商，我们要深刻反省，寻找新出路。”

寻找新的生存方式与环境是当地华商亟待解决的重大问题，他们应该认清当地市场的形势，积极为维护自己的合法权益而努力，同时，更应寻找新出路，为自己的生存而团结在一起。

（受访学者要求文中用化名）

■ 新闻链接

尼罗市场动荡形势一览

2009年11月，管理方断电、撤除物业管理、当地警察持续查封市场店铺等事件接踵而至。

2010年1月上旬，市场华人维权委员会实行自行管理，重新店铺最多时达到近300家。

2010年2月4日，罗马尼亚财政卫队警察连同防暴警察对市场20多间店铺进行了强制查

封及拉货。

2010年2月5日-9日，尼罗市场商户店铺门面90%遭强拆，市场被迫关闭。

2010年2月26日，市场华人维权委员会联合尼罗市场部分店主将市场管理方告上当地法院，并将于6月16日开庭审理此案。

2010年4月21日，尼罗市场遭遇彻底性强拆。

瑞士品牌

SWISS BRANDS

顶级品牌 瑞士制造

TOP STORIES MADE IN SWITZERLAND



瑞士国家馆
2010年上海世博会

亲爱的中国朋友们：

对于瑞士而言，与中国互通有无，是至关重要的，也是卓有成效的。我的职业生涯以及个人生活也正是在这样的大环境下展开的。我七十年代开始在华开展商业活动，八十年代开始收藏弘扬中国当代艺术，1995年至1998年我曾担任瑞士驻中国大使。能触摸中国文化，感受中国式生活，我十分珍惜这个“特权”，我更希望能向更多的瑞士人展示中国的珍宝。过去十年中国跃身世界舞台的中央，这对于我更是天赐良机。



我对中国怀有深深的敬意，也了解大中国和小瑞士之间的差异。这本《瑞士品牌》杂志旨在向中国的朋友们呈现瑞士的自然美景、创新成就和世界级品牌。中国驻瑞士大使董津义先生热切关注我们所取得的成绩，这对于我们十分重要。为此，我们向你们，亲爱的读者，推出了精心编排的《瑞士品牌》杂志——这里有山林间新鲜的空气，有指挥家汤沐海亲临体验口味的巧克力等种种美食，有设计精巧的日常用品，还有高度创新型经济下诞生的前瞻性产品，以及可持续发展领域里的突破性发明。期待您的关注！

祝愿瑞中两国友谊万古长青！

2010年上海世博会瑞士馆总代表
Uli Sigg 乌利·希克博士



3 卷首语

Foreword from Doris Leuthard,
Federal President of Switzerland

来自瑞士联邦总统多丽丝·洛伊特哈尔德女士的问候。

5 前言

Greetings from His Excellency
Ambassador Dong Jinyi

董津义大使向读者致意，祝上海世博会成功，并赞扬瑞士和中国的友谊。

8 美丽逃逸

Three Glorious Mountain Regions:
Escape to Nature

无论是铁力士山的冰川乐园、采尔马特的冬夏季运动还是圣莫里茨美丽的湖光山色都绝对是吸氧充电的好去处。

18 瑞士制造

Six Top Swiss Inventions

从瑞士军刀到电动牙刷，瑞士发明震撼世界。

22 日内瓦湖区

Lake Geneva Region:

Innovation and Sustainability
日内瓦湖区主张革新并致力可持续发展。
请看为什么她是公认的国际商业中心。

24 瑞士国家馆

Switzerland at Expo 2010

欢迎您参观世博会瑞士国家馆。
这里您能亲自体验“城乡互动”的自然乐园。

28 绿色屋顶

Green Competency by Sika

“城市，让生活更美好”——瑞士馆西卡方案建造的绿色屋顶，创新地把城市与自然结合为一体，崇尚自然，美化生活。

32 首都伯尔尼地区

Berne Capital Area: the Highlights

董津义大使讲述他在瑞士工作和生活的感触。
高度赞扬首都伯尔尼地区的发展和未来。

35 登峰造极

Peak Performances: Textiles and Watches

瑞士纺织精品和钟表制造谱写了精品中的极品。Strellson——瑞士男装品牌就是其中之一。

40 瑞士名人

Ten Swiss Personalities: Past to Present
介绍瑞士今昔10位著名人物，他们影响了世界。

44 瑞士国际航空

Comfort by SWISS

来自上海的心血管专家杨子江博士受邀体验瑞航商务舱即将启用的新型气垫座椅，听他讲述在东西之间的工作与生活。

49 海蒂在上海

Heidi Goes Shanghai

卡通师 David Boller 将瑞士著名小说人物海蒂送到上海，好一个上海历险记！

56 瑞士力康

Kuhn Rikon: the Art of Cooking

烹饪的艺术——看一看为什么瑞士力康锅具和厨具的确是一流品质。

58 品味瑞士

A Taste of Switzerland

和世界著名指挥家汤沐海的访谈，听他讲述在瑞士享受工作和生活的乐趣，和钟情 Lindt 瑞士莲巧克力的原因。

64 热情好客——瑞士人的传统

Learning Hospitality in Lausanne

礼仪好客是瑞士人的传统，举世闻名的洛桑酒店管理学院崇尚这一传统，从未停止创新和发展的步伐。

65 版本说明和有奖竞猜

Imprint & Contest

66 瑰丽的琉森湖地区

Lake Lucerne Region: Pure Swissness

瑞士中心地带琉森(卢塞恩)湖地区，周围壮丽的山峰，美丽的湖光山色让她成为瑞士光彩夺目的旅游胜地。

SWISS Business Class: Service at Its Best

两个世界 一心翱翔

瑞士国际航空公司就规模而言并非世界第一，但其商务舱及头等舱的舒适度却举世闻名。在不久的将来，飞往中国的远程航班上将启用的气垫座椅就是其明证之一。来自上海的**心血管专家杨子江博士在苏黎士机场亲身体验了这一创新型设计，并谈到他在中国和瑞士的生活与工作。**

文: Christopher Findlay 图: Tom Haller

杨子江博士在谈到重回故乡，参观2010年世博会的计划时说：“每次我回到上海，眼前呈现的都是一个全新的城市。”他一边由衷地发出爽朗的笑声，一边顺着回廊走向苏黎士机场的离港航站楼。不过，今天他登机只是来体验一下舒适的瑞航商务舱。

“上次我在瑞士呆了一年之后回到上海，发现自己都不会坐地铁了，上海的变化还真大！”他回忆道。2010年世博会的主题是：“城市，让生活更美好”。这一主题对于中国和瑞士显然有着不同的含义。对于座落在中国东海之滨的大都市上海来说，城市意味着拔地而起的高楼大厦，旖旎变化的都市风光，富有活力的商业环境。而在

伯尔尼，市中心多数榜上有名的建筑都已经有几百年的历史了。平日里悠然自得的生活步调，也是伯尔尼广为人知的一大特色，瑞士首都的旧城已被列为联合国教科文组织的世界文化遗产地。正是在这里，这个二十八岁的上海青年刚刚在瑞士心血管中心拿到博士学位。

在他看来，“伯尔尼与上海之间有着天壤之别。伯尔尼是一座惹人爱的老城，从容不迫，安静祥和。我们的大学实验室并不大，却有着优质的工作环境，与同事及其他研究实验室的合作也令人称道。每次回中国时，我总需要几天时间调整，去适应那里人们做事的节奏。”目前，他所在的工作组正在考虑同中国研究人员的合作机



宽敞空间，享我独有。杨子江博士兴致勃勃地体验着不久将启用的舒适、宽敞、独具个性化的新座椅。高效率和高质量是瑞航的标志。





瑞士国际航空从苏黎世的国际枢纽中心有飞往欧洲乃至全球各地的航班，包括每日飞往上海的航班。

Work, relax, and enjoy gourmet moments up in the air.

会。这种合作将是一种双赢，将瑞士谨慎细致的工作方法与东亚的高速运转和充沛活力结合起来。

由于经常出差，且又是心血管再生药物方面的专家，杨博士自然是评价瑞航新型气垫座椅的最佳人选。瑞航最近在商务舱中启用这种新型气垫座椅，并将于不久的将来用于飞往中国的远程航班。杨博士在穿过机场跑道时，谈起了瑞士人技术创新的爱好。“许多中国人一提起瑞士，就会联想起瑞士工艺的效率与品质。理由也很简单：瑞士最著名的出口产品是全自动机械表与瑞

士军刀。对有限空间的高效利用是瑞士人心中长久以来形成的基本理念。”

新型座椅中央放置的是压缩气垫，乘客可根据喜好和需要，把座椅调得软一些或硬一些。瑞航用空气取代了泡沫填料，从而向乘客提供更舒适更个性化的座椅，同时还减轻了座椅的重量，相比传统泡沫填料降低了燃料消耗和尾气排放。环保责任与良好的商业实践完美结合，为客户提供了极大的便利。杨博士还提到：“近几十年来，中国工业的巨幅增长也使人们对环境问题有了全新的认识。能源效率渐渐成为可持续发展宏观目

标中的重大问题，对年轻一代尤为如此。现在人们意识到，需要在环保的生活方式与商业利润间取得平衡。”

自从移居到瑞士，杨博士每年都要飞回中国一两次。自2008年起，瑞航重新开通了苏黎士到上海的每日直飞航班，这大大方便了他回家的旅途。他的家人也计划不久后到欧洲来看他。“我母亲去年来过瑞士，她被这个国家的美丽与浑然天成的自然和谐所震撼。”现在越来越多的中国旅客来到瑞士，体验阿尔卑斯山的壮美、保留完好的中世纪古城的风韵、以及苏黎士和日内瓦等国际大都市的现代生活。他强调：“两个国家间虽然有许多差异，但也有不少的共同点。比如说，两个国家都融合了多种语言与文化。两个国家的思维方式都非常国际化。”其实，还有另外一个显而易见的相似之处，无需这位2010年辉瑞研究奖得主指出：和许多瑞士城市一样，上海也受到了外国人的极大影响，他们为上海的城市风貌与经济财富做出了巨大的贡献。

“足够的腿部活动空间对于舒适、健康的飞行旅程，特别是长途飞行，十分重要。这一点你不需要成为心血管专家就可以知道。”杨博士仔细研究了座椅状态控制面板，座椅可以滑上、滑下、放平，对此他露出非常满意的神情。当座椅向后平稳滑至“躺椅”的位置时，杨博士笑呵呵地说道：“有时候，坐在我身边的人知道我的研究背景后，他们会征求我的建议。很明显，不时地伸展身体，可以舒缓压力，避免痉挛的发生。”商务舱的座位采用了交错排列，乘客们可以在新型活动躺椅上自由舒展，而不会妨碍前后乘客的活动。

接下来，他又体验了一下按摩功能。“飞行中，这样轻柔的按摩对放松肌肉、刺激血液循环，特别是血液微循环有很好的功效。”如果你要在飞机上呆上12个小时，尽可能地放松并且享受这种体验是很必要的。在他看来，这种放松的心态与技术创新的结合，正是瑞士生活非常惬意的一面。“心血管疾病通常是忙碌和久坐的生活方式导致的失衡。欧洲人一般都比较放松，而中国人则更容易出现劳累过度的现象。总体而言，瑞士是融合中欧两个世界精华的健康之所。”

回到航站楼，杨博士再一次回望停机坪。在他刚刚体验过的飞机旁边，停着将于下午一点直飞上海的A340。“下次回故乡，我一定会去世博会，尤其是瑞士展馆看看。”他笑着说：“如果上海的局面不会有太大的变化，不至于让我迷路的

话。”他还表示非常期待能够乘着舒适而时尚的新机型回家。

Christopher Findlay 现居住苏黎士，是自由撰稿人。写作范围包括能源、国际关系和国家安全问题。他的母亲是上海人。



瑞士国际航空的乘客可以在整个飞行旅途中享受亲切的个性化服务。往返于中国的航班上还有说中文的乘务员为您服务。

事实与数据

2009年，瑞士的国家航空公司——瑞士国际航空共搭载1380万旅客飞往40个国家的76个目的地，其中包括48个欧洲目的地和28个洲际目的地。公司拥有85架飞机，从巴塞尔、日内瓦和苏黎士枢纽机场飞往世界各地，瑞航将环保责任与良好商业行为相结合，致力于提高乘客的旅行舒适度，并采取了一系列措施，如采用先进技术，降低飞机重量，从而减少燃料消耗和二氧化碳排放量。

这里展示的瑞航新型商务舱座椅或许是同类中重量最为轻便的。气垫不仅能使旅途更加舒适，而且使用气垫的座椅比使用传统泡沫垫的座椅轻了4公斤。重量的减轻可使瑞航每年节约650吨煤油，并将公司年二氧化碳排放量减少2000多吨。

更多信息，请登录www.swiss.com或拨打4008 820 880咨询瑞士国际航空公司上海分公司。

瑞士国际航空设有每日往返于上海和苏黎士之间的航班。

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神州学人

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封面
人物

余海岁

为文化大发展建设人才队伍

中华文化是强国的软实力

大学的新功能：文化融合的催化剂

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海外游学侧影

文/杨子江

2005年1月的冬天，我一个人踏上了在欧洲大陆的游学之路。6年多来走过了很多地方，感受着很多迥异却同样灿烂辉煌的文化，也认识了许许多多不同肤色的朋友、同事、长辈。纷杂的世界观渐渐在我思想中扎下了深浅不一的根，形成了一个独特的自我：即融合了多元化的世界观，也充满着对家乡的无比赤诚和依恋。

在我获得的几个奖项中，唯独这个由祖国颁发的奖项，给予了我未曾有过的感动。一如我在申请时写下的那句话：“希望自己的所学所获，能够获得祖国的承认。”仅此，于我已莫大的鼓励。

2010年上海世博会的瑞士馆官方杂志《瑞士品牌》以《两个世界 一心翱翔》为题为我作了一篇专访，介绍了2007~2010年期间，我游走于瑞士、中国之间的学习、工作、生活经历。

暂别欧洲之际，我有幸获得了祖国颁发的2010年度优秀自费留学生奖，为我在大陆上度过的6年求学生涯画上了完美的句号。

而今，我又踏上了美国东海岸，在哈佛医学院及麻省理工学院中继续着求学的征途。而波士顿，这个300年前因五月花号的到来而揭开北美文明序幕的地方，也成为了我游历第三片大陆的开端。

游学与留学

我一直不想用“留学”这两个字来表述自己的经历，因为迄今为止，我未曾在一个地方停留许久。相比而言，用“游学”二字更为贴切。

6年来，从短至数周的人文游览，到长达几年的专业学习，我的足迹涉及了欧美10多个国家：北欧的简约淳朴，英国的绅士古典，法国的自由不羁，意大利的热情浪漫，德国的严谨求实，瑞士人的精密守时，美国的生机勃勃……每一片土地都孕育着属于自己的文化精神，风格迥然异彩纷呈。正是这些伟大而鲜明的文化特征，一点一滴地镌刻出人类历史的世界观。如果用一个词来形容这种世界观，在英

语里称之为multicultural，即多种文化的结合产物。巧合的是，我从事的生物医学工程研究，也正属于multidisciplinary的交叉科学领域，即多种科学和市场的结合产物。

回顾求学之路，现已无从追溯是因为multicultural的世界观让我选择了multidisciplinary的专业领域，还是因为所爱的交叉科学研究在潜移默化中激发了我对多文化世界观的向往与追求。但有一点可以肯定，这种思想和专业的相辅相成，在前进中的每个环节都给予了我莫大的帮助。

伯尔尼小记

2007年春天，经过北欧斯堪的纳维亚半岛3年的学习生活，凭着对再生生物医药领域的浓厚兴趣，我再次选择了离乡背井，途经法国抵达瑞士伯尔尼，开始攻读博士学位。到瑞士读博士，这个当时让我犹豫再三的决定，从现在看，几乎改变了我的一生，也指明了我今后的道路。

说起伯尔尼这个建于12世纪的中古小城，虽然不及日内瓦、苏黎世闻名于世，却是瑞士国家首都。瑞士最重要的两栋建筑：联邦大厦和国家银行位于伯尔尼市中心老城区，它们历经9个世纪的修缮维护，依然保持着中世纪的原有风貌，于1983年被列为联合国教科文组织的世界文化遗产地。更不可思议的是，这块安静祥和的历史瑰宝同时充当着现代城市商业中心的重任，常年位居全球生活质量最高城市排行榜的前十位。建造在老城和阿尔河交界处的“熊坑”是伯尔尼的不可不提的景观，其中饲养着三头棕熊，被视为城市的象征。因为“伯尔尼”从德语直译的意思就是“熊城”，传说是第一位统治者以在此猎捕到的第一只动物命名为由来。如今，往来的游人在踱遍了老城之后就会在此休息，感叹着山水自然与历史文明的完美融合。

战斗在异乡

6年多的游学生涯将懵懂的我一步一步地领入了生活和社会，教会了我求是和奋斗，也教会了我如何在陌生的环境中独立生活。

Lost in translation，异乡生活最大的问题就是语言障碍。刚到伯尔尼，虽然工作环

境通用英语，可是在日常生活中，不会瑞士德语给我带来了诸多不便，比如在超市里常常会因为不认识标签买错东西。为了克服这个问题，我下意识地提高自己的观察能力，久而久之，练成了“观形辨物”的能力：通过商品的包装就能大致猜出其用途。

另外一项“意外”学到的生存技能，就是维护自己的合法权益，在原则性的问题上必须捍卫自己的立场。2010年年初，因为自己做的课题，我和组里的一位同事分享了瑞士最重要的生物学奖——“辉瑞研究奖”。可是没想到因为这项荣誉，引发了另一位瑞士同事的妒忌及不满。他以我不是瑞士人、无权获得瑞士奖为由，背地里给有关方面写信建议把我的名字从获奖名单中剔除。当时很多人都劝我在客乡不如息事宁人，同事甚至愿意交换他自己的名额来平息事端。可是思虑再三，我还是选择了坚持斗争。因为在这件事情上体现出的原则性，我不仅维护了自己的利益，也赢得了所有同事、朋友及有关人士的尊重和支持，最终站上了领奖台。

瑞士制造

伯尔尼于上海，或者说瑞士于中国，最大的区别，是一种节奏上的平和与宁静。

很多人都说，瑞士养懒人，这里没有大城市无止境的拥堵，看不到如火如荼的工地，也很少有高声的喧哗和汽车蜂鸣。最常见的是在幽静的下午，三三两两的路人坐在街边的露天餐馆，一杯咖啡或者啤酒，谈天说地。工作上，节奏也是异常地缓慢，完全没有那种争分夺秒的忙碌。

相较于上海，瑞士似乎把人与人之间的生存竞争变成了为同一个目标而通力合作。当

然，这种淡泊功利的从容与瑞士人对严谨、对精致的不懈追求是形影不离的。

从能容纳1700多个部件的瑞士腕表开始，“瑞士制造”早已成为了“精密”、“极致”的代名词。在对科学真理的探寻中，“瑞士制造”也将对追求严谨及精致的孜孜不倦发挥得淋漓尽致。

自1901年以来，瑞士科学家在各领域共获得了24个诺贝尔奖项。此外，共有100多名诺贝尔奖获得者与瑞士有着密不可分的关联。阿尔伯特·爱因斯坦也正是在伯尔尼居住时期发表了著名的相对论。如果按人均比例计算，瑞士的诺贝尔获奖者比例稳居世界第一。在全球发表的科学论文中，瑞士文献的平均引用率超过美国，排名世界第一。正是这种“慢工出细活”的理念，使瑞士一举成为了全球医药王国、食品王国、精密仪器王国及金融王国。

乡情与亲情

一直以来，我都立志成为“世界公民”，而内心深处，我始终以祖国为荣，以祖国为骄傲。这种民族的亲情离乡越久、见识越多就越深刻。

小时候不明白，为什么一部分人总说外国的月亮特别圆，而老人们总怀着浓浓的思乡情。刚到瑞士，的确是为这里的自然环境、人文素养叹服，然而时间长了，对家乡的思念就压倒了一切。

博士毕业后，我曾在上海度过了几个月的假期，一晚我颇有闲情地倚坐在浦东滨江大道上，晚风拂面，凝望着江岸灯火辉煌的外滩，熟悉的场景却忽然带给了我终身难忘的醒悟：无论何时何处，我的根依然永恒不变地扎

在上海，在中国，在这个生我养我的故乡！

我曾对一位瑞士记者说过，每一次回上海，都会因为错过了城市的飞速发展而产生短暂的陌生感。其实，藏在我心中的下句是：可是这里永远是我的家乡，是最熟悉的土地。

谈起了家乡，自然就想起了父母。的确，游学教会我的，还有对父母的理解。因为时代的不同，父母和孩子之间必然有着代沟。年少不经事的时候觉得自己永远是对的，父母是错的。等长大些，便开始明白大多时自己是错的，父母是对的。最后学会了理解，才明白，其实对错之争没有任何意义。父母告诉你的，是用他们的岁月换来的经验，其中包含的不仅是答案，更是那独一无二的关爱和希望。理解了这些，也就能自然理解父母的建议。即使与自己所选的路截然不同，也可以幸福着收下那一份爱。所以，幼年总是期望父母“理解万岁”的我，很庆幸能在游学的历程中学会了理解父母。这正如我所追求的multicultural的世界观，其旨不为接受，而为理解与包容。

三个世界，一心翱翔

回望脚下的路，从上海交通大学开始，经过瑞典的乌普萨拉大学、卡罗林斯卡医学院、瑞士的伯尔尼大学，至今走到了美国的哈佛医学院和麻省理工学院。其中有微笑也有曲折，有帮助也有背叛，甚至还有路尽的时候，可是在意的，却只有前方的目标。“行到水穷处，坐看云起时”。

目标坚定。

向前看。

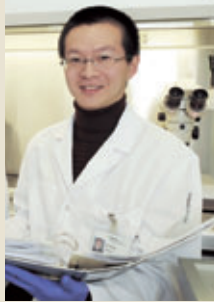
尽我所能。

不算是座右铭的三句话，却一直以来支撑着我，在三个大洲、三个世界，一心翱翔。■

杨子江，2010年“国家优秀自费留学生奖学金”获得者，留学瑞士。

1981年出生，2003年获上海交通大学生物工程专业学士学位。2005~2007年在瑞典乌普萨拉大学和卡罗林斯卡医学院学习，获分子生物学硕士学位。2007~2010年在瑞士伯尔尼大学、瑞士心血管中心血管药物研究部攻读生物学博士，主要研究方向为治疗心血管疾病的干细胞疗法。发表论文7篇。现于美国哈佛医学院、麻省理工学院卫生科学与技术部(HST)从事干细胞疗法与生物科技相结合的应用型研究。

2010年度瑞士最高医学研究奖——辉瑞研究奖获得者，2010年度瑞士血管学协会年度奖获得者，2010年度瑞士杰出未来学者奖金获得者。另受瑞士国际航空公司邀请，出任其在2010年中国世博会瑞士馆官方杂志《瑞士品牌》中的形象宣传代表。



Circulation

JOURNAL OF THE AMERICAN HEART ASSOCIATION



European Perspectives

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Circulation

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European Perspectives in Cardiology



Funding: Swiss National Science Foundation Ambizione Programme and Fellowships for Prospective and Advanced Researchers

Grants for Junior Researchers to Work on Projects in Switzerland and for Prospective and Advanced Researchers to Work on Projects Abroad

Recipients of Ambizione grants for cardiovascular research and fellowships for prospective and advanced researchers describe their research and their experience to Jennifer Taylor, BSc, MSc, MPhil.

The Swiss National Science Foundation has a number of funding awards for young scientists.

Ambizione Programme

The Ambizione programme promotes junior researchers in all disciplines. It is geared towards young researchers who would like to conduct, manage, and lead an independently planned project at a Swiss university. Researchers from all disciplines can apply provided they have received a PhD within the past 5 years or have completed their medical training with a doctorate (MD) and done at least 3 years of clinical work. Clinicians must apply within 9 years of obtaining their medical licence. Qualified researchers from Switzerland who are working abroad or who have returned after a stay abroad are eligible. The programme also aims to attract the best, next-generation foreign talent to carry out research work in Switzerland. Applications should include confirmation from the host institute that it will fund research expenses such as material, equipment, personnel, and travel. Shortlisted candidates are invited to present their research project and career plan.

The Swiss National Science Foundation Research Council conducts the scientific assessment of proposals. It looks for quality, originality, relevance, and independence of the research project; scientific autonomy of the applicant at the host institute; applicant's scientific track record and suitability for a high-level career in academic and clinical research; proof of mobility regarding choice of workplace; and potential for integration into the Swiss scientific community. Each year it awards 40 to 50 grants and aims to award ≈35% of these to women. Successful applicants receive a salary (≈CHF110,000 per year) and project funds for 3 years. Grants may be extended by up to 2 years.

Recent Ambizione Grants for Cardiovascular Research

2010: To Investigate the Functional Characteristics of Stem Cell-Derived Cardiomyocytes

Nina D. Ullrich, PhD, is a research fellow working with Professor Ernst Niggli, MD, at the Institute of Physiology, University of Bern, Bern, Switzerland.



During her postdoc in the field of cardiac cell physiology and pathophysiology, Dr Ullrich became increasingly interested in modern cardiac repair methods and regenerative medicine. With the Ambizione grant she is investigating whether stem cell-derived cardiomyocytes provide all of the required functional characteristics to successfully integrate into the cardiac environment. She is characterising the electrophysiological properties of single stem cell-derived cardiomyocytes and the intercellular communication with native heart cells. Dr Ullrich says, "The grant has helped me become scientifically independent and start up my own research group, and I got the chance to start a totally new area of research at our Institute."

2009: To Investigate the Kinin System in Endogenous Endothelial Repair

Nicolas Kränkel, PhD, is a postdoctoral researcher at the Institute of Physiology, Department of Cardiology, University Hospital Zürich, Zürich, Switzerland, under the supervision of Professor Ulf Landmesser, MD.



She is investigating the action of the vascular kallikrein kinin system, in particular bradykinin derived from the vascular wall, on circulating and rolling

Public Health) under the supervision of Andrew Steptoe, MA, DPhil, DSc, FMedSci. “The fellowship offered me a great opportunity to promote my academic career,” says Dr La Marca. He is now a senior research associate in the Department of Clinical Psychology and Psychotherapy, University of Zürich with group leader Ulrike Ehler, PhD.



Study of the Atherogenicity of Oxidised Phospholipids in the United States

In June 2009, Gregor Leibundgut, MD, left the University of Basel to carry out postdoctoral research at the University of California San Diego, San Diego, CA, for 2 years. He used a fellowship for prospective researchers during the first year. Under the supervision of Professor Sotirios Tsimikas, MD, he studied the atherogenicity of oxidised phospholipids (OxPL) and their role in chronic inflammation. Using a transgenic Lp(a) mouse model and a mutant version lacking the ability to bind OxPL, they tested the hypothesis that the OxPL content of Lp(a) is a key atherogenic component. He also evaluated the predictive value of OxPL on plasminogen in large acute coronary syndrome/percutaneous coronary intervention databases. “I gained significant experience in multiple basic science techniques and expertise in cardiovascular science, which will serve me well in my cardiovascular specialty career,” he says.



Study of Passive Support in Preventing Heart Failure in the United States

A fellowship for prospective researchers allowed Alkiviadis Tsamis, PhD, to conduct postdoctoral research in the Mechanical Engineering Department and Computational Biomechanics Lab, Stanford University, Stanford, CA. He had previously worked at the Swiss Federal Institute of Technology in Lausanne. During his fellowship he used a hybrid experimental and computational approach to investigate the question “Can passive support prevent heart failure?” Supervision was provided by Professor Ellen Kuhl, PhD, in the Computational Biomechanics Lab, and Neil Ingels, PhD, at the Research Institute of the Palo Alto Medical Foundation. Dr Tsamis is now a postdoc researcher at the Vascular Bioengineering Lab of Professor David Vorp, PhD, at the University of Pittsburgh, Pittsburgh, PA. Dr Tsamis says, “I will use my experience from my postdoctoral stays at Stanford and Pittsburgh as important stepping stones for my future academic career.”



Exploring New Methods to Analyse Cardiac Pathology in Norway

Stefano Fausto de Marchi, MD, postdoctoral researcher, Department of Cardiology, University Hospital, Bern, is using a fellowship for advanced researchers to investigate whether spatial myocardial deformation analysis using 3-dimensional speckle tracking in

cardiac ultrasound is useful for the clinical assessment of left ventricular function. Under the supervision of Svend Aakhus, MD, Department of Cardiology, Oslo University Hospital, Oslo, Norway, he is exploring new methods of analysis, developing software, and testing the methods in patients with aortic and mitral regurgitation or previous myocardial infarction. “It is a step towards the *venia legendi* at the University of Bern,” says Dr de Marchi. “The field is open for further studies and collaborations, and a Swiss National Science Foundation project funding application is planned.”

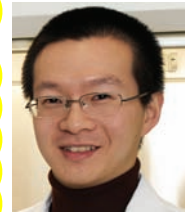
Identifying Ablation Targets in Persistent Atrial Fibrillation in France

Patrizio Pascale, MD, senior resident in electrophysiology and pacing, Service of Cardiology, Centre Hospitalier Universitaire Vaudois, Lausanne, is using a fellowship for prospective researchers to conduct research in the Electrophysiology Department of Professor Michel Haïssaguerre, MD, Hôpital Cardiologique du Haut-Lévêque, Bordeaux-Pessac, France, under the supervision of Professor Pierre Jaïs, MD, and in collaboration with Jean-Marc Vesin, PhD, from the Applied Signal Processing Group of the Ecole Polytechnique Fédérale de Lausanne. His research aims to identify the most critically vulnerable ablation targets in persistent atrial fibrillation. Dr Pascale is acquiring knowledge about signal processing in atrial fibrillation, gaining experience in the combination of clinical research and bioengineering, and establishing contacts with clinicians and researchers. He says, “The contacts will represent valuable opportunities in the future for developing collaborative projects when I move back to Switzerland.”



Bioengineering Adult Stem Cells in the United States

Previously at the University of Bern, Zijiang Yang, PhD, is using a 2-year fellowship for prospective researchers to work as a postdoctoral research fellow at Brigham and Women’s Hospital, Harvard Medical School, Harvard Stem Cell Institute, and Harvard-MIT Division of Health Sciences and Technology. Dr Yang has joined the lab of Professor Jeffrey Karp, PhD, a leading innovator in translational bioengineering, and is focusing on the bioengineering of adult stem cells to elucidate new biology and develop novel cell-based therapeutics. He says, “This prestigious fellowship made it possible to strengthen my research experiences and plugged me into a world-leading, top-notch research network.”



Investigating Arrhythmia in Familial Cardiomyopathies in Belgium

Mehdi Namdar, MD, is using a fellowship for advanced researchers to support his PhD research in the Heart Rhythm Management Centre, VUB-Free University of Brussels, Brussels, Belgium, under the





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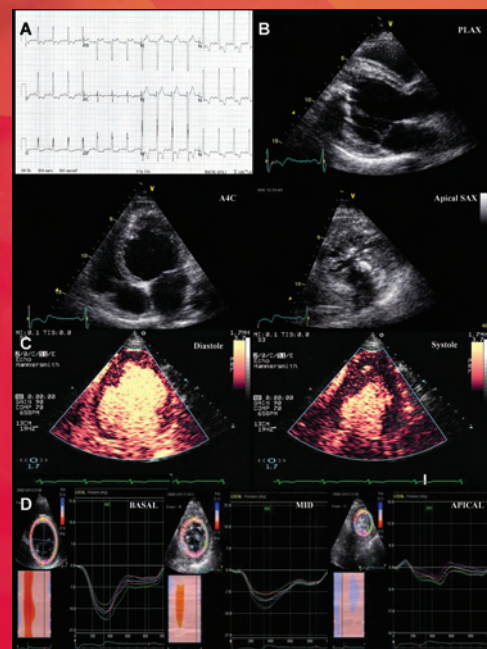
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Uncommon insertion of papillary muscles and abnormal cardiac rotation. See figure legend on page 1539.



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People's corner: Prize awarded

doi:10.1093/eurheartj/ehq160

Christoph Kalka MD received the 2010 Pfizer Foundation Research Prize for his novel Cell-Free Strategy for Therapeutic Angiogenesis

Christoph was a late bloomer starting his research career in vascular medicine in the late 1990s aged 32 years at Tufts University, Boston.

A graduate of Hamburg University, Germany, in 1992, he went to London's University College Hospital for his internship, internal medicine, and clinical cardiovascular training which then continued in Cologne.

He travelled to the USA as a postdoctoral research fellow, to Prof. Jeffrey Isner's internationally acclaimed laboratory at St. Elizabeth's Medical Center, Boston, in 2001.

His contribution there, with Isner and Prof. Asahara, was documented in several high-impact publications, during which time he became an acknowledged researcher in the field of endothelial progenitor cells (EPCs). Following his research and clinical Fellowship in the USA (1997–2001), he worked with Prof. Strauer (2001–2005) who initiated the first clinical trial of autologous bone marrow cell transplantation to patients with acute coronary syndrome at the University Hsp in Düsseldorf. In 2005, he joined Iris Baumgartner at the Swiss Cardiovascular Center Bern University Hospital, Switzerland, and, with support from the Swiss National Foundation and the Swiss Heart Foundation continued his efforts to understand determinants of the kinetics and function of EPCs. Together with his group, he investigated the role of ischaemia, and certain cytokines, as major regulators of EPC mobilization from bone marrow into the peripheral circulation.

The major aim of his work during the last 3 years has been to develop novel strategies to treat ischaemic cardiovascular diseases using a cell-free method. Using the knowledge of his recent research, he hopes to identify the constituents of the hypoxic-conditioned medium from cultured endothelial cells. Then he may be able to synthetically reproduce the active agent for new pro-angiogenic pathways, and finally, to test it in clinical trials.

In June 2009, Kalka became Chief of Cardiovascular Medicine at Marien Hospital, Brühl, located between Bonn and Cologne. He continues to have his lab group in Bern but will focus more on clinical issues as a clinician and interventional angiologist by establishing a reputable centre for vascular medicine.



Pfizer Research Prize presentation February 2010.
Photo left to right: Kalka (group leader), Dr Stefano DiSanto (postdoc), Jan Voelzmann (technician), Ziji Yang (PhD student)

Pfizer research Price 2010

MEDIA REVIEW



More than 4.5 million media contacts throughout Switzerland (as of 27.4.2010)

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			German	French	Italian
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Info Pages	3	411'001	1	333'000	78'000
Specialty and hobby magazines	99'290	117'000	0	0	117'000
Specialized press	86'099	86'099	72'019	14'080	0
Professional organizations	3	3	1	1	1
Press agencies	3	3	1	1	1
Radio	1	1	1	0	0
Total Media Contacts	1'377'832	4'636'088	2'839'001	1'440'083	357'004

Cell-free solutions

Dr Stefano Di Santo's research group is exploring a novel cell-free therapeutic option for the treatment of ischaemic diseases based on soluble factors released by endothelial progenitor cells.



To begin, could you explain what prompted this project and what you hope to achieve through your research?

Despite the enormous potential of stem cells to repair damaged tissues, several studies have demonstrated that transplanted cells show very limited capacity to differentiate and integrate in the host tissue. It is believed that at least part of the regenerative capacity displayed by stem and progenitor cells in different animal models has to be attributed to *in situ* secretion of paracrine factors rather than the engraftment-transdifferentiation. This is true also for the endothelial progenitor cells (EPC). Thus we have decided to take advantage of this aspect and use exclusively the factors secreted by EPC as a therapeutic agent. We

hope that through our study we will be able to develop a cell-free therapeutic agent, either derived from *in vitro* cultures of EPC or its synthetic surrogate that could be used alone or in combination with other medical interventions.

Why have you chosen to work with EPC? What advantages does this type of cell possess over others?

EPC can be isolated from peripheral blood. Therefore, compared to other types of stem cells it is relatively easy to isolate and cultivate. Moreover, their regenerative capacity has been demonstrated by a number of publications. In addition, EPC are in fact progenitor cells, not stem cells; thus they have a limited plasticity, meaning they are committed to a determined phenotype (endothelial). This might appear a disadvantage in comparison to the multipotency of stem cells, but it is an advantage because the risk of tumour formation induced by the transplanted cells is also limited.

By what means are you using stem cells to induce neovascularisation and tissue regeneration?

Basically we use EPC just as a source of factors. This cocktail (secretome) is then injected in the ischaemic tissues (at the moment either muscle or brain). Through our screening analyses of the secretome we could identify several factors and cytokines known to support growth and viability of vascular and neuronal cells.

What possibility does Nogo-HR235 offer in combating neurodegeneration?

This is a very interesting aspect of our research. Nogo-HR235 is a potent growth inhibitor of the nervous system and it is known to limit neuronal regeneration after injury and in neurodegeneration. The discovery of Nogo-HR235 has raised enormous hopes for therapy for spinal cord injury, that the combination of this molecule and neurotrophic factors, such as BDNF, could open new scenarios for innovative stroke therapies.

Have collaborations with other laboratories played a part in your research? If so, what you gained from these experiences?

We have continued our research in our laboratories in collaboration with other laboratories in the field of stem cells and vascular medicine. Our contacts with these laboratories will also be very important for the development of strategies aimed at the efficient delivery and engraftment of the secretome.

What has been your most significant achievement to date?

Perhaps, to have demonstrated the potential of our secretome, although only in animal models.

A cocktail recipe for success

Researchers at the **University of Bern** are developing an original therapeutic strategy which could benefit patients with ischaemic tissues, using a cell-free medium based on a variety of factors

ISCHAEMIA IS THE inadequate supply of blood to an organ such as the heart, brain and bowel, or to the limbs. The condition is generally caused by problems with blood vessels, with resultant damage or dysfunction of tissue; the affected organ suffers from a lack of oxygen and nutrients and can die. If the heart muscle is affected, it can lead to a heart attack, whereas if the arms and legs are affected, arterial occlusion results, and a stroke may occur if the brain is affected.

To treat these diseases, different approaches have been suggested including the idea of helping new blood vessels to grow by stem cell transplantation, which represents a promising alternative to the conventional and unsatisfactory therapies in cardiovascular medicine. Stem and progenitor cell-based therapies are also encouraging approaches to restore the tissue functionality of ischaemic organs. Despite this, the therapeutic adoption of cell-based strategies has been limited by technical and practical aspects such as the invasiveness of harvesting, the low abundance of cells and considerations of immunotolerance.

Recent research findings indicate that bone marrow-derived endothelial precursors called endothelial progenitor cells (EPC) provide a rich source of trophic and protective factors for vascular cells. Accumulating evidence suggests that the secretory capacity of EPC plays an important role in tissue regeneration and in guiding vessel growth and functions in normal and pathological settings. Therefore, the angiogenic features of EPC by paracrine mechanisms open new scenarios for clinical applications of cell therapy.

CELL-LESS POSSIBILITIES

Researchers at the University of Bern in Switzerland are currently working on a novel cell-free therapeutic option for the treatment of ischaemic diseases based on a variety of soluble factors released by EPC in culture. Instead of treating damaged tissue through transplantation, they are trying to reduce

tissue degeneration and stimulate the organ's own repair system using only cell-derived soluble factors hence the name cell-free therapy. Led by Dr Stefano Di Santo, the group is exploring the potential of EPC conditioned media from healthy human donors and investigating other sources like umbilical cord blood and peripheral blood of patients with atherosclerotic disease in order to determine which source is best suited to exploit the angiogenic features of EPC.

For this experimental approach, Di Santo's group is applying *in vitro* and *in vivo* experiments using rat models of hindlimb ischaemia and focal brain ischaemia. They will seek to define by proteomics how the differences in the physiological outcome of the different conditioned media preparations are reflected in changes of growth factor composition. The aim is to apply their results as a basis to manufacture a defined synthetic mixture of proteins, which could be employed in novel therapeutic applications as an alternative to cell transplantation.

COCKTAIL OF FACTORS

The *in vitro* experiments being conducted have shown that EPC secrete a great variety of factors, and that this cocktail supports the viability of endothelial cells when challenged with oxidative stress; a condition which occurs in atherosclerotic diseases. "Importantly, it seems that this cytoprotective effect is the result of the combined effect of several factors. In fact, the cytoprotective effect was not attenuated by the inhibition of the most common factors active on endothelial cells, such as VEGF or HGF," Di Santo explains.

The team's studies on rats have provided evidence that this cocktail is active *in vivo* and that it supports the revascularisation of ischaemic hindlimb muscles and discloses potent angiogenic and tissue regenerative capacity. They have also shown that treatment with EPC secreted factors led to a substantial increase in blood flow in the ischaemic area

INTELLIGENCE

CHEMICALLY-DEFINED CELL FREE MEDIUM: A NOVEL THERAPEUTIC STRATEGY TO INDUCE REGENERATION OF ISCHEMIC TISSUES

OBJECTIVES

The present research project proposes a novel cell-free therapeutic option for the treatment of ischaemic diseases based on soluble factors released by EPC *in vitro*. The potential of EPC-conditioned media from healthy human donors and other sources like umbilical cord blood and peripheral blood of patients with atherosclerotic disease will be explored.

KEY COLLABORATORS

Professor Hans Rudolf Widmer, Dr Robert Andres, Dr Nicole Porz, Dr Angelique Ducray, Stefanie Seiler, Professor Stephen Leib, University of Bern, Switzerland • **Professor Daniel Surbek, Dr Pascal Senn, Dr Volker Enzmann**, Bern University Hospital, Inselspital, Switzerland • **Professor Morten Meyer**, University of Southern Denmark • **Dr Christoph Kalka**, Marienhospital Brühl, Germany • **Dr Zijiang Yang**, Brigham and Women's Hospital, Harvard Medical School & MIT, Cambridge, MA, USA

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STEFANO DI SANTO holds a PhD from the University of Bern where he works as Senior Scientist. His research focuses on angiogenesis, blood vessel homeostasis and tissue regeneration. He was awarded the Foundation Pfizer Research Preis in 2010 for work on cell-free therapy.

with augmented neovascularisation, vascular maturation and recovery of the ischaemic muscle function. Most importantly, the EPC secreted factors exhibited a regenerative potential equivalent to that achieved by EPC transplantation.

Not only does Di Santo's approach significantly improve upon current therapies in cardiovascular treatments, but he also hopes that his work can be applied to other areas: "We think that this cocktail of factors stimulates an endogenous repair system based on the host stem cells. Therefore our approach is not limited to cardiovascular medicine". For example, it is known that the number and functional state of EPC are impaired in conditions like diabetes or in the presence of cardiovascular risk factors such as smoking. It can therefore be assumed that the secretion of factors by EPC is impaired, whether through cause or effect. Thus, comparing the secretory profile of EPC that has been isolated from both healthy and diseased individuals might help to improve understanding of the disease and to cure it. "Identification of the impaired paracrine mechanisms in patients could indeed be helpful to identify and validate new drug targets as well as to develop more focused therapeutic strategies to promote functional recovery of the ischaemic tissue," he adds.

CLINICAL TRIALS

If Di Santo's project is successful, the next logical step for his research would be a clinical trial. Although it is difficult to predict whether

his group's work will lead to a new therapeutic approach, Di Santo is confident that the development of a cell-free therapeutic agent, either as *in vitro* cultures of EPC or as conditioned media alone or in combination with other interventions will represent a significant advance in the field of regenerative medicine. "Additional therapeutic approaches with sufficient quality and quantity

In Switzerland alone, hundreds of thousands of patients suffering from a heart attack, stroke or arteriosclerosis could potentially benefit from this work

and tissue regeneration as a therapeutic approach for hundreds of thousands of patients suffering from a heart attack, stroke or arteriosclerosis could potentially benefit from this work. The results of this study are not only of great scientific interest but also of fundamental importance for the development of new applications in regenerative medicine. The recovery of ischaemic tissue suggests that the secreted factors could potentially replace all the factors of the present treatment. The instruments



(From left to right): Professor Hans Rudolf Widmer, Dr Stefano Di Santo, Dr Nicole Porz, Chiara Fontana, Dr Robert Andres.

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