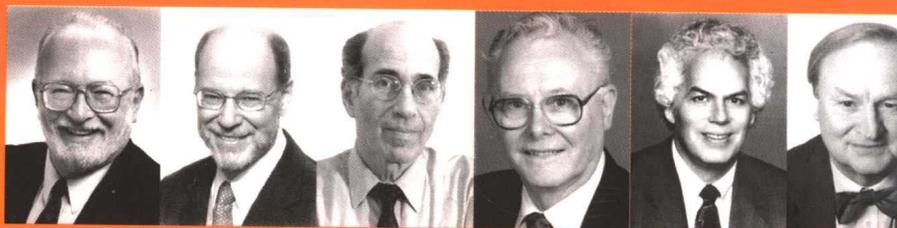


英汉注释流行读物丛书

Success Way To Nobel: Physiology & Medicine

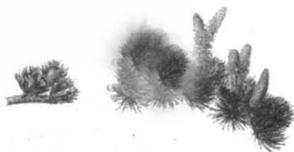


成功迈向诺贝尔之路：

诺贝尔生理医学奖获得者篇

总主编：江治刚 陈学科

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—— 诺贝尔生理医学奖
获得者篇



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总 序

高尔基说，书籍是人类进步的阶梯。那么，阅读应该是攀登这架梯子的步伐。没有脚踏实地的步伐，梯子再高、再结实也无济于事。阅读是人类文明进步的标志，也是人类发展的保证。

心理语言学家 Goodman (1970) 把阅读定义为一个复杂的过程，在此过程中，读者在一定程度上重构以文字编码的信息。据美国全国艺术基金会公布的一项调查显示，读书的人比较活跃，而不读书的人（这占到美国人口的一半多）则比较冷漠。读书需要努力、集中精神和注意力。它能启发人们的思考和情感体验，也提供思考和情感体验的成果。而电子媒体则可能让人变得迟钝。一个人虽然能选择频道，但接下来信息就会按照预先处理的方式出现。郁郁寡欢的人为什么越来越多呢？这是因为整天盯着电视和电脑屏幕带来的孤独感在作祟。因此，在抑郁者增加的同时读书者在减少，这不是偶然的。相反，文字阅读把人引向对话。一本好书可以成为一个好朋友。它不是冲着你大发议论，而是与你平等地对话。因此读书的危机就是国家政治的危机。读书本身是一种个人行为，我们必须使读书也变成一种社会行为，使读书重新融入我们的文化，并使它成为国民生活的支柱。

阅读是一个积极主动的活动。一篇文章的意义不在于材料本身，而是读者与材料不断交流活动的结果。读者把新知识和旧知识联系起来，以便完整地理解文章的意义，这种引申意义的脑力活动不仅是对词汇意义的解码，而且是对文章的全面理解。阅读也是一个判断、推理、归纳、总结的过程。读者需要把分散于文章中的各种信息联系起来，经过必要的判断、推理，得出自己对文章的认识。

阅读在外语学习中起很重要的作用，它的魅力在于能够激发英语学习者的想象力，充分利用读者的图像思维，使读者的大脑时常处于积极活动状态。同时，也能使学习者更好地了解英语国家或地

区的政治、经济、历史、文化等方面的知识。阅读理解技能是英语考试的关键。同时，大量阅读可以提高阅读速度，扩大词汇量。另一方面，它还可以加强英语语感，对英语写作起着潜移默化的作用。因此，阅读不仅是人们认识世界、汲取知识的重要手段，也是掌握语言知识、打好语言基础、获取信息的重要渠道。我们知道“Learn reading by reading only (在阅读中学会阅读)”才是学习英语，进而了解世界的真谛。

本着知识性、趣味性和启发性相结合的“寓教于乐”精神，本套丛书特意收集了诺贝尔奖获得者的人生履历。它可使我们在享受英语之美的同时，收获各种专业知识；在领略名人风采的同时，提升对人生的领悟。从这个意义上说，本套丛书实乃征服感官和心灵的益智类首选读物。

该书的编者皆为高校有经验的一线教师，有着良好的教育背景和勤勉善思的专业嗅觉，希望能为自己献身的事业做些具体事情。

鉴于编者知识有限、经验不足，加之时间仓促，纰漏和不当之处还请方家及时批评指正，我们将不胜感激。

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2007年9月

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Richard Axel

理查德·阿克塞尔



2004年诺贝尔生理医学奖获得者

理查德·阿克塞尔，1946年7月2日生于美国纽约，1967年在美国哥伦比亚大学获得学士学位，1970年取得美国约翰·霍普金斯大学医学博士学位，现就职于美国哥伦比亚大学霍华德·休斯医学研究所，任生物化学、分子生物物理学和病理学教授。在人类诸种感觉中，嗅觉产生机理一直是最难解开的谜团之一。独特的花香会唤起一个人久远的美好回忆，但一种难闻的气味也会让人对某种食物避之唯恐不及。嗅觉不仅让人的感受更加细致入微，而且对很多动物感知周围环境，以至于更好地生存也起着重要作用。人能够分辨和记忆约1万种不同的气味，但人具有这种能力的基本原理是什么？2004年度诺贝尔生理学或医学奖获奖者、美国科学家理查德·阿克塞尔和琳达·B.巴克，通过自己开拓性的工作找到了解开这一谜底的钥匙，清楚地阐明了人类嗅觉系统的工作方式。

molecular biology

分子生物学

naive *adj.* 无知的

eclectic *adj.* 折中
(主义的)

concomitantly *adv.*

伴随地

trepidation *n.* 颤抖

chromatin *n.* 核染

质

beret *n.* 贝雷帽

ecstatic *adj.* 狂喜的

adjacent *adj.* 邻近
的

recombinant *n.* 重

组

Although he felt a growing confidence in his abilities in **molecular biology**, Richard Axel was **naive** in other areas of biology, notably biophysics. Importantly, he had a sense early in his career that his interest in biology was **eclectic** and that he would need a **concomitantly** broad background to embrace the different areas of biology without **trepidation**. He left to begin a second postdoctoral fellowship at the National Institutes of Health, working with Gary Felsenfeld on DNA and **chromatin** structure. Since he entered medical school to avoid the draft, he had a military obligation that was fulfilled by his years at the NIH and was endearingly termed a “yellow **beret**”.

Sol Spiegelman invited him to return to Columbia as an Assistant Professor in 1974 in the Institute of Cancer Research. He was **ecstatic** to occupy a lab and office **adjacent** to his. Sol had many visitors in those years, and when he felt bored in a meeting he would excuse himself and hide in his office where they talked science until his visitors finally gave up and left. He was studying the structure of genes in chromatin and had the good fortune of participating in a revolution made possible by recombinant DNA technology. He spent a great deal of time with Tom Maniatis, who pioneered many of the techniques in **recombinant** DNA. Tom left Harvard for Cal Tech, because he was restricted from performing recombinant DNA experiments in Cambridge, Massachusetts. They learned how to cut and paste DNA, to isolate



genes and to analyze their **anatomy** down to the last detail.

In 1982, Axel began to think about the potential impact of the new molecular biology and recombinant DNA technology on problems in **neuroscience**. Molecular biology was invented to solve fundamental problems in genetics at a molecular level. With the **demystification** of the brain, with the realization that the mind emerges from the brain and that the cells of the brain often use the very same principles of organization and function as a humble bacterium or a liver cell, perhaps molecular biology and genetics could now interface with neuroscience to approach the **tenuous** relationship between genes and behavior, cognition, memory, emotion, and perception. This thinking was the result of a faculty meeting at which Eric Kandel and he overcame their boredom with administration by talking science. Eric was characteristically **exuberant** about his recent data that revealed a **correlation** between a simple form of memory in the marine snail, *Aplysia* and cellular memory at the level of a specific **synapse**. Molecular biologists had encountered cellular memory before in the **self-perpetuating** control of gene expression. This led to the realization that this was the moment to begin to apply the techniques of molecular biology to brain function and he would attempt to recruit Eric Kandel as his teacher.



anatomy *n.* 解剖, 解剖体

neuroscience *n.* 神经科学

demystification *n.* 非神秘化启蒙, 启发

tenuous *adj.* 纤细的

exuberant *adj.* 丰富的, 非凡的

correlation *n.* 相关

synapse *n.* 突触

self-perpetuating *adj.* 能使自身永久存在的

It is this work for which Linda Buck and he



profound *adj.* 意义深远的

coterie *n.* 同行, 圈内人, 伙伴

obsession *n.* 迷住, 困扰

derive *vi.* 起源
incisive *adj.* 深刻的

representative *n.* 代表

share the **profound** honor and good fortune of having been awarded the Nobel Prize in Physiology or Medicine. But there are deeper, more human joys, two sons, Adam and Jonathan, his sister, Linda, a very close **coterie** of friends, and a new love. Watching, contributing to the growth of his children is not only moving but humbling and puts his intense life in science in perspective. Often this intensity, bordering on **obsession**, distracted him from fathering and this is a regret.

Finally, the Nobel Prize was awarded to him not as a man, but for his work, a work of science that **derives** from the efforts of many brilliant students as well as from the **incisive** teachings of devoted colleagues. He takes equal pride in the science that has been accomplished in the laboratory as in the scientists that have trained with him and are now independently contributing to our understanding of biology. He therefore feels that he can only accept the Nobel Prize in trust, as a **representative** of a culture of science in his laboratory and at Columbia University. He is deeply grateful for this culture.

2

Linda B. Buck



琳达·B.巴克

2004年诺贝尔生理医学奖获得者

琳达·B.巴克, 1947年1月29日出生于美国西雅图。1975年她获得了美国华盛顿大学的心理学和微生物学学士学位。1980年在美国得克萨斯大学西南医学中心取得免疫学博士学位后, 她曾于1980年至1984年间在美国哥伦比亚大学进行博士后研究。巴克现任职于美国西雅图的弗雷德·哈钦森癌症研究中心, 是美国国家科学院院士。巴克的研究室除了研究嗅觉外, 还发现了

位于犁鼻(vomeronasal)器官大约有140种的费洛蒙接受器, 这些是专司侦测费洛蒙的嗅觉结构。此外, 巴克的研究室对于老化及长生不老也很感兴趣, 他们认为也许有一群细胞透过中央控管, 影响全身其他细胞的老化, 他们正对线虫展开全面的研究。由于我们对这种虫的每一个细胞了如指掌, 希望能从中找出延长这些线虫寿命的化学物质, 说不定将来这项结果也可以应用在人类上。



She was born in 1947 in Seattle, Washington, a city surrounded by mountains, forests, and the sea.

immunology *n.* 免疫学

In 1980, she moved to Columbia University in New York City to do postdoctoral work in **immunology** with Benvenuto Pernis.

neuropeptide *n.* 神经肽

neuron *n.* 神经元

transcript *n.* 转录

peptide *n.* 缩氨酸

While studying a **neuropeptide** gene expressed in **neuron** number R15, she discovered that the gene was also expressed in some other neurons, but that its primary **transcript** was alternatively spliced in different neurons to give different polyproteins. The two polyproteins could generate two different combinations of **peptides** in different neurons, suggesting a way to produce physiological or behavioral programs with partially overlapping components.

odor *n.* 嗅觉的感受、激发或感觉

olfaction *n.* 嗅觉

generate *vt.* 产生

perception *n.* 感觉

unparalleled *adj.* 无比的, 空前的

odorant *n.* 有气味的东西

As she was nearing the end of her *Aplysia* project, she read a paper that changed her life. It was a 1985 publication from Sol Snyder's group that discussed potential mechanisms underlying **odor** detection. This was the first time she had ever thought about **olfaction** and she was fascinated. How could humans and other mammals detect 10,000 or more odorous chemicals, and how could nearly identical chemicals **generate** different odor **perceptions**? In her mind, this was a monumental puzzle and an **unparalleled** diversity problem. It was obvious to her that the first step to solving the puzzle was to determine how **odorants** are initially detected in the nose. This meant finding odorant receptors, a class of



molecules that had been proposed to exist, but had not been found. She decided that this was what she had to do as soon as her neuropeptide work was completed.

In 1988, she **embarked on** a search for odorant receptors, staying on in Richard's lab for this purpose. In a recent **commentary** in the journal *Cell*, she described what was known about odor detection at that time and the approaches that she tried in the quest to find the **elusive** odorant receptors.

embark on 从事, 着手

commentary *n.* 评论

elusive *adj.* 难捉摸的

In 1991, she departed for Boston to be an assistant professor in the Neurobiology Department at Harvard Medical School. There, she **was immersed in** an environment in which she could broaden her understanding of the nervous system. She received excellent support from her chairman, Gerry Fischbach, as she set up her lab. She also developed many excellent colleagues, including David Hubel, whose pioneering studies of the visual system with Torsten Wiesel, for which they received a Nobel Prize in 1981, had always been an **inspiration** to her. In 1994, she became an investigator of the Howard Hughes Medical Institute, which has generously supported their work for the past eleven years. Over the next decade, she remained at Harvard, gradually rising through the ranks to become associate and then full professor. In 1994, she met Roger Brent, a **marvelous** intellect and fellow scientist who has been her partner and an important part of her life ever since.

be immersed in 陷于

inspiration *n.* 灵感

marvelous *adj.* 非凡的