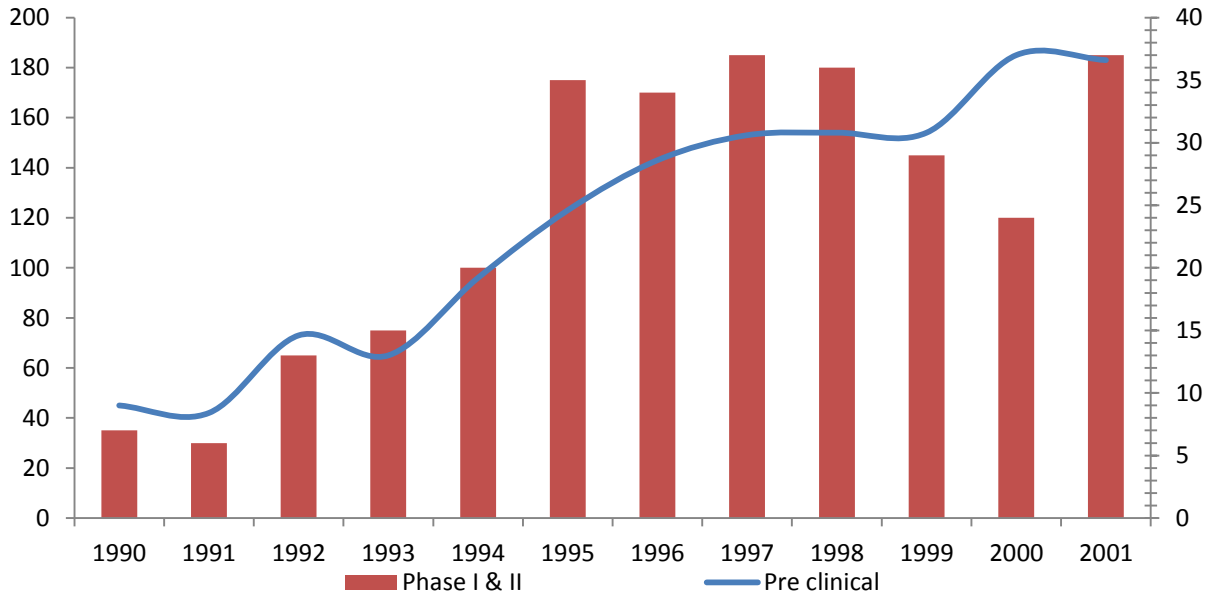
Appendix 1: New Molecular Entities (NMEs) Approved by the FDA and Global R&D Spending by Pharmaceutical Companies by Year



*Source: Nature Reviews Drug Discovery **7**, 107-109 (February 2008); CMR International Pharmaceutical R&D Factbook*

Appendix 2: Selected R&D Data on GSK

FY	2001	2002	2003	2004	2005	2006	2007	Avg.
Sales (in £ mn)	20,489	21,212	21,070	19,986	21,660	23,225	22,716	21,480
R&D (in £ mn)	2,651	2,900	2,865	2,904	3,136	3,457	3,237	3,021
(% of Total)	12.9%	13.7%	13.6%	14.5%	14.5%	14.9%	14.2%	14.1%
Employees	107,900	106,200	103,200	99,800	99,500	101,800	103,400	103,114
thereof in R&D	15,100	14,800	14,800	14,900	15,000	15,700	15,700	15,143
(% of Total)	14.0%	13.9%	14.3%	14.9%	15.1%	15.4%	15.2%	14.7%
Projects	161	177	201	195	200	210	210	193
(In clinical phase)	118	123	148	140	149	158	157	142
(thereof partnered)	NA	40	52	47	57	55	55	51
(In preclinical phase)	43	54	53	55	51	52	53	52

Source: GSK Annual Reports

Note: no. of preclinical products calculated as total no. of project minus project in clinical stage. For competitive reasons, GSK has started to only give proxies for number of total projects in 2005.

Appendix 3: From Drug Discovery to Drug Development

Drug Discovery

Activities	Discovery of the target receptors	Identify molecules that inhibits the target	Identify molecules with good pharmacological activity	Laboratory and animal testing
Duration	1-2 years	1 year	1.5 years	1 year

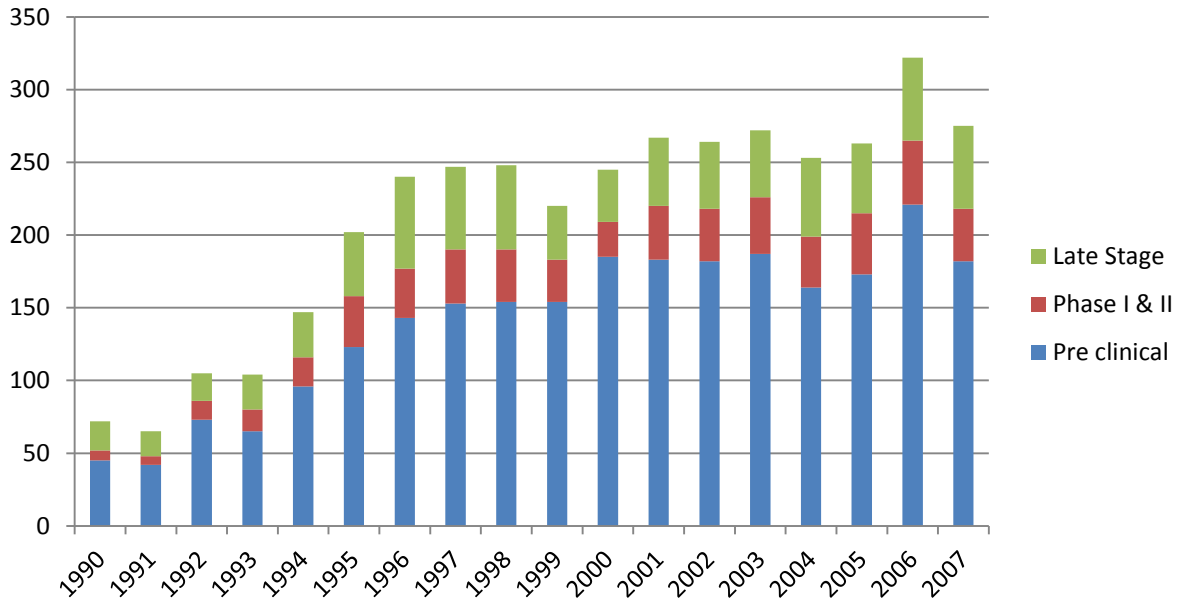
Clinical trials

Activities	Healthy volunteers used to determine safety and dosage	Patient volunteers used to look for efficacy and side effects	Patient volunteers used to monitor adverse reaction to long-term use	Approval from competent authorities to market new drug	Continued monitoring, evaluate long term-effects
		Proof of concept stage			
Duration	1 year	1-2 years	1.5-3 years	0.5-2 years	10 years
Attrition Rate	38%	60%	40%	23%	

Source: Casewriters, based on Ismail Kola and John Landis, 2004, Nature Reviews, Vol. 3, 711-715

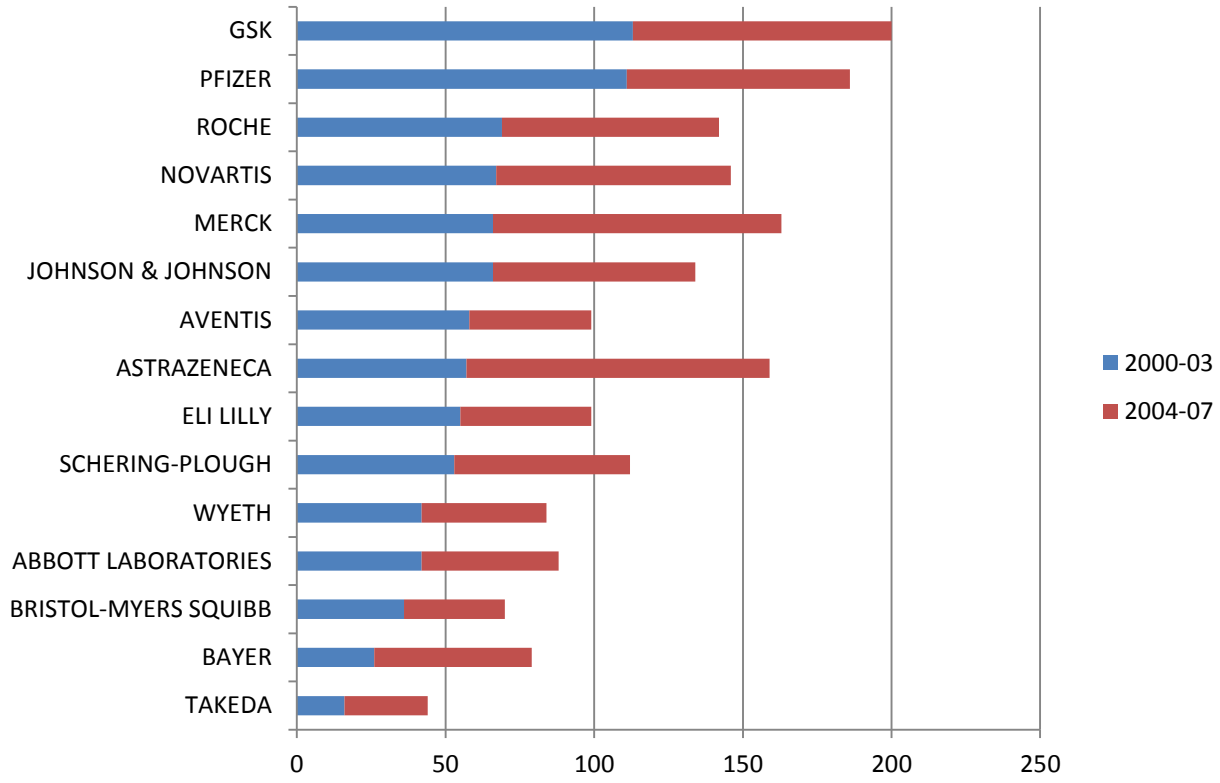
Note that an attrition rate of 38% means that 38% of the drugs taken in the clinical phase drop out in Phase I.

Appendix 4: Licensing Activity for the Top 33 Pharmaceutical Companies by Stage in Development Process



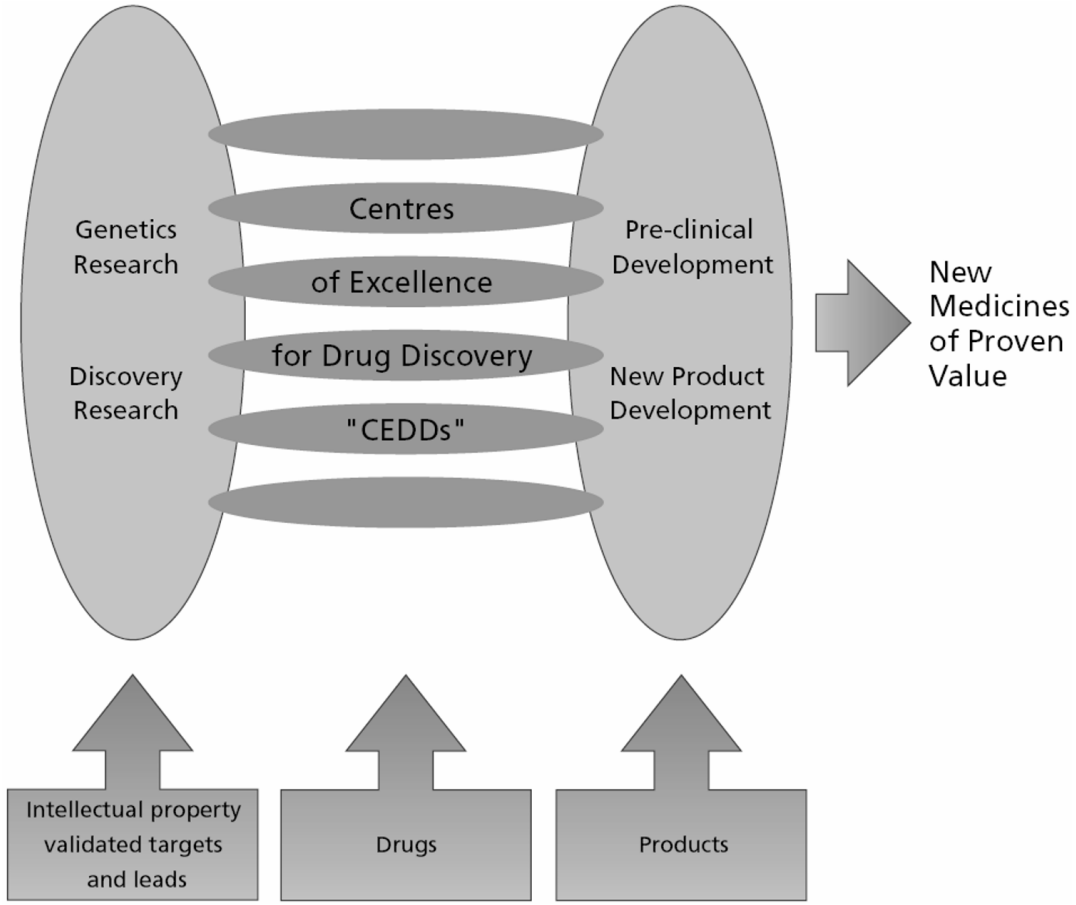
Source: *Recap database*, casewriter calculations

Appendix 5: Licensing Activity for the Top 15 Pharmaceutical Companies by Time Period



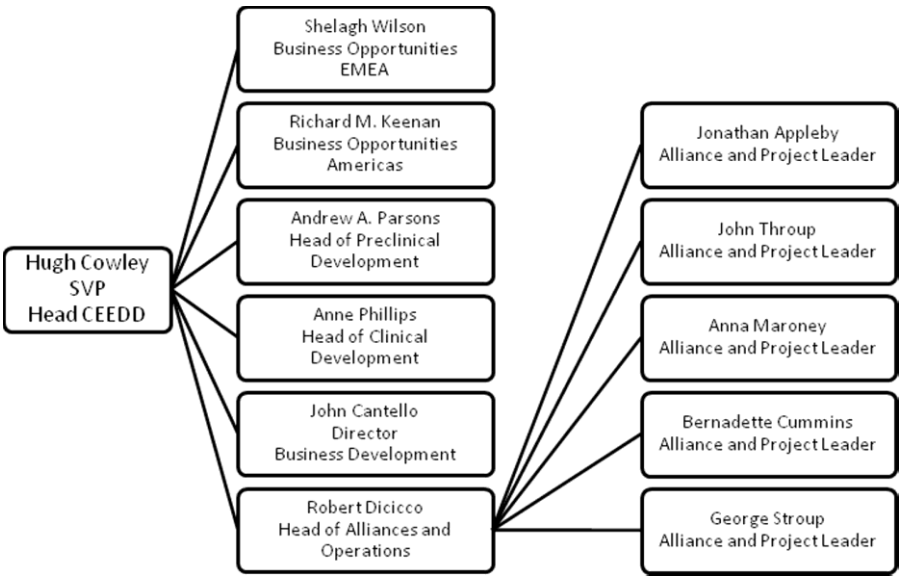
Source: Recap database, casewriter calculations

Appendix 6: CEDDs in the Drug Development Process



Source: GSK Annual Reports

Appendix 7: CEEDD's Organizational Structure



Source: GSK CEEDD

Note: support functions not included (HR, finance, legal, etc.).

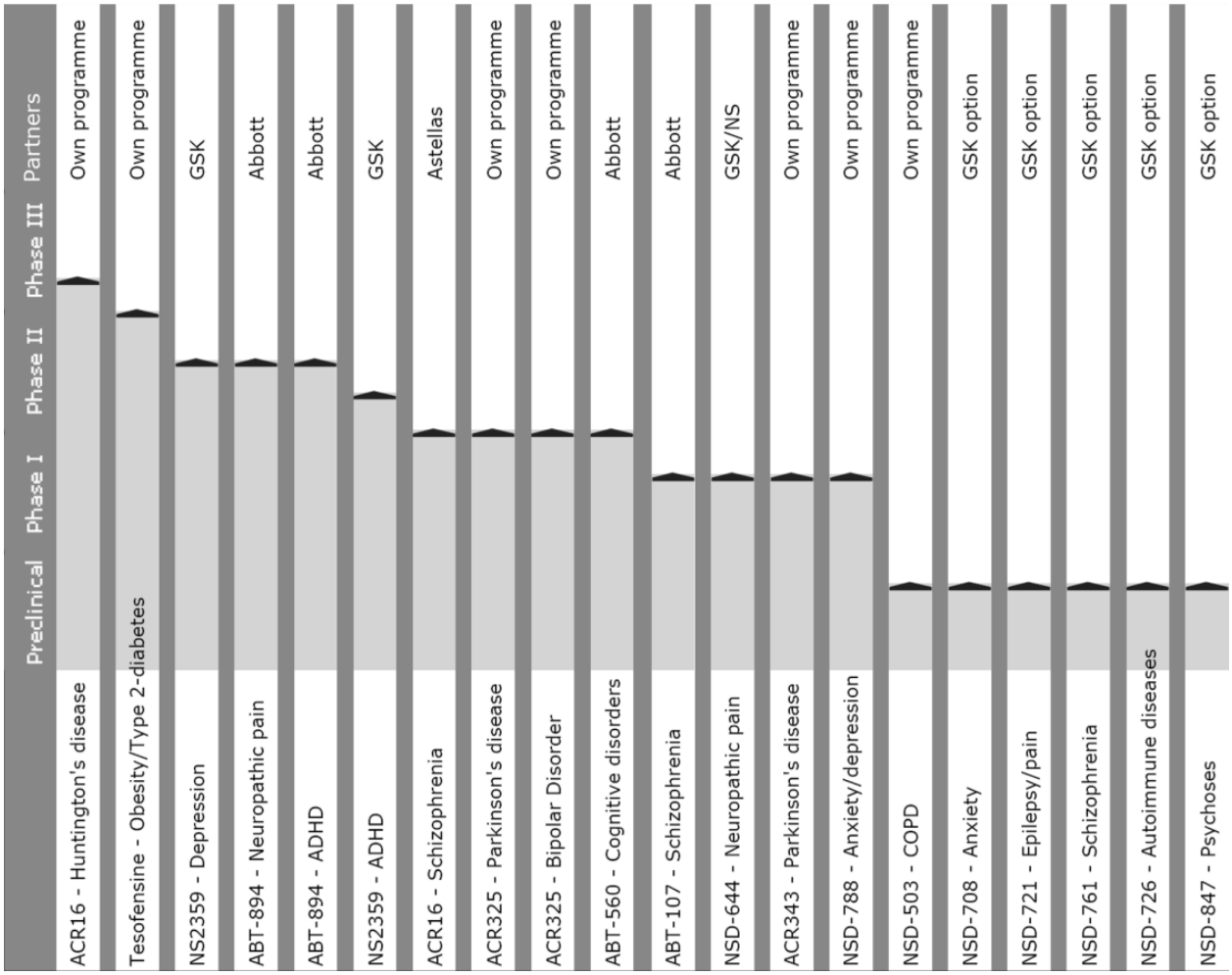
Appendix 8: Overview of CEEDD's Partners

Company	Country	Started in	Therapeutic area(s)
Anacor Pharmaceuticals**	USA	October 2007	Infectious diseases
Bio-Medisinsk Innovasjon**	Norway	September 2005	Heart failure
ChemoCentryx	USA	August 2006	Inflammatory disease
EPIX Pharmaceuticals	USA	December 2006	G-protein coupled receptors (GPCRs), e.g. against Alzheimer's disease
Exelixis*	USA	October 2002 (to June 2008)	Vascular biology, inflammation, oncology
Galapagos**	Belgium	June 2006	Osteoarthritis
MPEX Pharmaceuticals**	USA	June 2008	Efflux pump inhibitors, antibiotics
NeuroSearch*	Denmark	December 2003	Ion channels and CNS disease
OncoMed Pharmaceuticals	USA	December 2007	Oncology
Pharmacopeia	USA	March 2006	Multiple
Ranbaxy*	India	October 2003	Urology, anti-diabetic, anti-bacterial, asthma, anti-fungal
Targacept	USA	July 2007	Pain, smoking cessation, obesity, addiction, Parkinson's disease
Theravance*	USA	March 2004	Bacterial infection, respiratory disease, urinary incontinence, gastrointestinal disease

* Existing alliance transferred to CEEDD ** Alliance initiated, but not managed by CEEDD day-to-day

Sources: Press releases, CEEDD website

Appendix 9: Development Pipeline of NeuroSearch A/S



Source: NeuroSearch website

Appendix 10: Overview of CEEDD Activities

Date	Action	Partner	Sum in $ mn (if applicable)
01/08/2006	XL647 enters Phase II	Exelixis	
05/10/2006	TD-5108 enters Phase II	Theravance	
22/12/2006	XL880 enters Phase II	Exelixis	
30/03/2007	Milestone payment	Galapagos	3.2
02/04/2007	Compound selected	Ranbaxy	
13/06/2007	Milestone payment	Pharmacopeia	5
29/06/2007	Option decision: negative	Theravance	
02/07/2007	Commitment Extended (equity investment)	Galapagos	4.4
17/07/2007	Milestone payment	Pharmacopeia	0.5
24/07/2007	Milestone payment	ChemoCentryx	5
26/07/2007	Option decision: negative	Exelixis	
14/08/2007	Milestone payment	EPIX Pharmaceuticals	3
14/09/2007	Report on XL880 submitted to GSK	Exelixis	
01/11/2007	Milestone payment	Pharmacopeia	1
05/11/2007	Milestone payment	EPIX Pharmaceuticals	3
03/12/2007	NSD-644 enters Phase I	NeuroSearch	
03/12/2007	TC-2696 completes Phase II	Targacept	
10/12/2007	Milestone payment	Targacept	10
14/12/2007	Option decision: positive	Exelixis	35*
18/12/2007	Milestone payment	Galapagos	7.5
16/01/2008	PRX-03140 completes Phase IIa	EPIX Pharmaceuticals	
18/01/2008	Option decision: negative	Exelixis	
18/03/2008	Milestone payment	Pharmacopeia	5

05/05/2008	Milestone payment	EPIX Pharmaceuticals	7.5
05/05/2008	Milestone payment	Targacept	0.5
13/05/2008	Milestone payment	ChemoCentryx	10
04/06/2008	Milestone payment	Pharmacopeia	0.5
05/06/2008	Milestone payment	EPIX Pharmaceuticals	5.5
11/06/2008	PRX-03140 enters Phase IIb	EPIX Pharmaceuticals	
12/06/2008	Preparations for CCX282-B to enter Phase II/III complete	ChemoCentryx	
16/06/2008	Milestone payment	Galapagos	0.8
15/07/2008	Milestone payment	Theravance	10
24/07/2008	Milestone payment	Pharmacopeia	0.5
28/07/2008	POC notification on XL184 sent to GSK	Exelixis	
16/09/2008	Milestone payment	Pharmacopeia	0.5

* plus future considerations

Source: Casewriters, based on press releases

Appendix 11: Biographies of the CEEDD Team

Source: CEEDD website

Hugh Cowley, Head of the CEEDD

Hugh is the Head of the CEEDD having been promoted from VP CEEDD Clinical Development. Prior to this he was Vice President, Clinical Development in the Neurosciences Medicines Development Centre (NS MDC) responsible for Ph II through IV development in Neurology and Psychiatry within GlaxoSmithKline (GSK). Prior to this, from 2001-2004, he was Vice President, Discovery Medicine in the Microbial, Musculoskeletal and Proliferative Diseases Centre of Excellence in Drug Discovery (MMPD CEDD) responsible for Ph I and II development and translational medicine in GSK. Hugh has progressed many compounds into clinical development, to proof of concept and to regulatory file. Hugh joined SmithKline Beecham in 1994 and held various positions of increasing responsibility within Clinical Pharmacology, working in early development and translational medicine with a focus on neuroscience, inflammation and respiratory therapeutic areas. Hugh graduated with an MA in Pharmacology from Cambridge University and received his medical degree from Oxford University. He has postgraduate training in anesthesia with subspecialty training in Intensive Care and is a Fellow of the Royal College of Anaesthetists, London.

Shelagh Wilson, Ph.D., VP Business Opportunities - Europe, Asia and Emerging Markets

Shelagh is responsible for the identification of new business opportunities for the CEEDD, with a focus on Europe and the emerging markets in Asia. She is one of the founding members of the CEEDD, having been appointed Head of Biology in June 2005. As a member of the CEEDD leadership team Shelagh helps set CEEDD strategy, sponsors CEEDD business deals for approval by GSK, and serves on multiple joint steering committees overseeing a drug discovery portfolio spanning diverse therapeutic areas. Prior to the CEEDD Shelagh spent over 20 years in drug discovery, working in a variety of therapeutic areas including metabolic, CNS and cardiovascular disease areas. She also worked in the genomic arena, helping lead a transnational team responsible for identifying novel G-protein coupled receptors from the human genome. The team successfully transitioned over 45 novel targets into the Drug Discovery portfolio across a range of therapeutic areas, several of which progressed into GSK's development pipeline. Shelagh graduated from Bristol University with a first class honors degree in Biochemistry, subsequently taught chemistry and maths as a VSO volunteer in Ghana, and obtained her PhD from Chelsea College, London, studying cancer-induced cachexia. She is co-author on over 70 peer-reviewed scientific publications.

Richard M. Keenan, Ph.D., VP Business Opportunities – Americas

Rick is responsible for the identification of potential business opportunities from North American companies for review by the CEEDD and then the sponsorship of the new CEEDD deals for approval at GSK. He is one of the founding members of the CEEDD, having been

appointed head of chemistry in June 2005. As a member of the CEEDD leadership team, Rick helps set CEEDD strategy and serves on multiple joint steering committees overseeing a drug discovery portfolio spanning diverse therapeutic areas. Previously, he had been a director of chemistry for the MMPD CEDD at GSK, overseeing lead optimization efforts on multiple programs. In his twenty-two years of drug discovery research experience, Rick has contributed to the discovery of numerous clinical candidates for diverse therapeutic indications, including the marketed antihypertensive Teveten® and the recently submitted TPO receptor agonist Promacta®. Rick has co-authored over 50 scientific publications and is a co-inventor on over 30 issued patents or patent applications. He obtained his Ph.D. in organic chemistry from Stanford University in 1986 and has a B.S. in chemistry from the University of Pennsylvania.

Andrew A. Parsons, Ph.D., VP Head of Preclinical Development

Andy has led the Preclinical Development function in the CEEDD since its creation. He was previously the Head of Preclinical Development for the Neurology and Gastrointestinal (NGI) Centre of Excellence for Drug Discovery (CEDD) and a member of the Executive Leadership Team. Andy joined SmithKline Beecham in 1991 as a lead biologist on the Migraine Programme and played a key role in the identification of Frovatriptan and Tonabersat. He has worked in a number of Therapy Areas within Drug Discovery and has led teams that progressed numerous compounds in development. He was also previously the Chairman of the Imitrex (Sumatriptan) International Scientific Advisory Board. Andy graduated with a B.Sc. and Ph.D in pharmacology, University of Manchester, UK. He worked as a Post-Doctoral researcher at the Institute of Physiology, University of Munich, Germany. He has authored more than 90 peer-reviewed publications.

Anne Phillips, M.D., VP Head of Clinical Development

Anne is Head of Clinical Development in the CEEDD. She joined GW in 1998 as a Medical Advisor in the Canadian company and became Medical Director in 1999. In 2000, she was appointed VP R&D in the newly formed GSK and led a group of approximately 400 people in Clinical Development, Basic Research and Genetics, Biomedical Data Sciences, Medical Information and Drug Surveillance, Medical Advisors and Business Strategy and Investment. In 2004 Anne moved to the Cardiovascular Metabolic Medicines Development Centre in Philadelphia and became the Global Clinical Head of metabolic prior to joining the CEEDD team in 2007 and oversaw the clinical development of all metabolic compounds in GSK from Proof of Concept to the marketplace.

Anne specialized in Internal Medicine, Infectious Diseases and Medical Microbiology. She was the founding Medical Director for Casey House Hospice for AIDS in Toronto and has held a number of senior academic positions at the University of Toronto including Director of Microbiology at the Toronto Hospital, Chief of Infectious Diseases at The Wellesley Hospital, and Director of the HIV Program and the Wellesley Hospital and St Michael's Hospital.

John Cantello, Ph.D., Director Business Development

John Cantello is currently Director, Transactions in GlaxoSmithKline's (GSK) Worldwide Business Development Group and is also a member of Leadership Team for GSK's Centre

of Excellence for External Drug Discovery (CEEDD). In this role, John is primarily responsible for setting the business development strategy for the CEEDD and managing the sourcing and transactions of all CEEDD strategic discovery & development alliances. Over the past three years, John has contributed to the establishment of the CEEDD alliance portfolio (7 new alliances beginning in 2006) and has led the Targacept, Inc. and Praecis Pharmaceuticals transactions; the latter of which resulted in an acquisition by GSK in 2007. Prior to his current role, John spent three years in the GSK Worldwide Business Development group scouting and securing access to platform technologies that could enable the early stages of GSK drug discovery and development across all major therapeutic areas. Prior to joining GSK, John was employed by other large pharma (Bristol-Myers Squibb), mid-size biopharmaceutical (Regeneron Pharmaceuticals) and venture-backed start-up biotechnology companies (Morphochem AG; formerly Small Molecule Therapeutics, Inc.) where he held various roles of increasing responsibility that spanned drug discovery, project management and business development. John received his PhD in molecular Virology from the University of Delaware and post-doctoral training in gene therapy at the California Pacific Medical Center, San Francisco, CA.

Robert Dicicco, Ph.D., VP Head of Alliances and Operations

Rob heads up the Alliances and Operations Group in the CEEDD which is responsible for leading due diligence exercises on new deals and option decisions in addition to managing the CEEDD alliances. Prior to joining the CEEDD, Rob was the Global Project Leader for GSK's Tykerb which was approved for HER2 positive breast cancer in 2007. In addition he was an integral part of helping to build GSK's Oncology Medicine Development Centre. Rob originally joined SmithKline Beecham in 1992 as a Clinical Pharmacologist profiling a number of new investigational drugs with a focus in the areas of metabolic and cardiovascular diseases. Over the course of his career he has made a number of contributions in the areas of clinical trial design, project and portfolio management. Rob received his Doctor of Pharmacy degree from the Philadelphia College of Pharmacy and Science with advanced in Clinical Pharmacy completed at Thomas Jefferson University Hospital in Philadelphia, PA.

Jonathan Appleby, Alliance & Project Leader

Jonathan joined the CEEDD in 2006 and currently manages alliances with European and Emerging Market companies covering therapy areas such as oncology, neurology, respiratory and anti-infectives. Jonathan's Genetics PhD from the University of Leeds was complemented by a year's post doc research with the Cancer Research Campaign in Manchester. In 1996 he moved from the benchside in order to gain experience of clinical pharmacology with Quintiles Phase 1 unit in London (QGUY) and from there moved to GlaxoWellcome in 1999. After the merger with SmithKlineBeecham Jonathan took a prominent position leading several drug discovery programs in Neurology. Jonathan is currently working with the CEEDD Alliances NeuroSearch and Ranbaxy.

John Throup, Alliance & Project Leader
John joined the CEEDD in 2006 from Endo Pharmaceuticals where he was a Project Director leading the development of assets across the CNS portfolio from in-licensing through to Phase III. Prior to joining Endo John served as a Project Manager at GlaxoSmithKline, managing and leading development projects within the Anti-Infectives group. John joined GSK in 1997 as a post-doctoral researcher specializing in signal transduction systems. John is currently working with the CEEDD Alliances Chemocentryx and Targacept.

Anna Maroney, Alliance & Project Leader
Anna recently joined the CEEDD in 2008 as Alliance and Project Leader. She earned her Ph.D. in biochemistry at the University of Rochester and completed her post-doctoral fellowship with Dr. Joan Brugge at the University of Pennsylvania. Anna has over 15 years of experience in drug discovery and early drug development with a unique blend of biotech and large pharma research and business development. Prior to joining GSK, Anna had increasing roles of responsibilities at Cephalon Inc, 3-Dimensional Pharmaceuticals and Johnson & Johnson PRD. Anna is currently working with the CEEDD Alliance Exelixis.

Bernadette Cummins, Alliance & Project Leader
Bernadette joined the CEEDD in 2005 as Alliance and Project Leader working with companies in Europe and US with the ultimate goal to bring assets from target to PoC and transition into GSK. Prior to her current position, Bernadette spent the last 15 years in sales and marketing positions for UK and Europe gaining expertise in shaping development from PoC all the way through to leading the launch of pan European brands in Psychiatry. This commercial experience followed on from a short career in academic research after attaining a BSc in Biochemistry and PhD in Cardiovascular Medicine at the University of Birmingham UK. Bernadette is currently working with the CEEDD Alliance EPIX.

George Stroup, Alliance & Project Leader
George Stroup joined the CEEDD in 2005 and has more than twenty years of experience in drug discovery including program and discovery team leadership. He has led or supported many projects from their inception, two of which have achieved clinical proof of concept. Prior to joining the CEEDD George interacted with several alliances within his therapeutic area. George is currently working with CEEDD Alliances Oncomed, Theravance and Pharmacopia.