

# IChemE: New Graduate to Chartered Chemical Engineer

Darren L. Oatley-Radcliffe

IChemE ADVANCING  
CHEMICAL  
ENGINEERING  
WORLDWIDE



Swansea University  
Prifysgol Abertawe

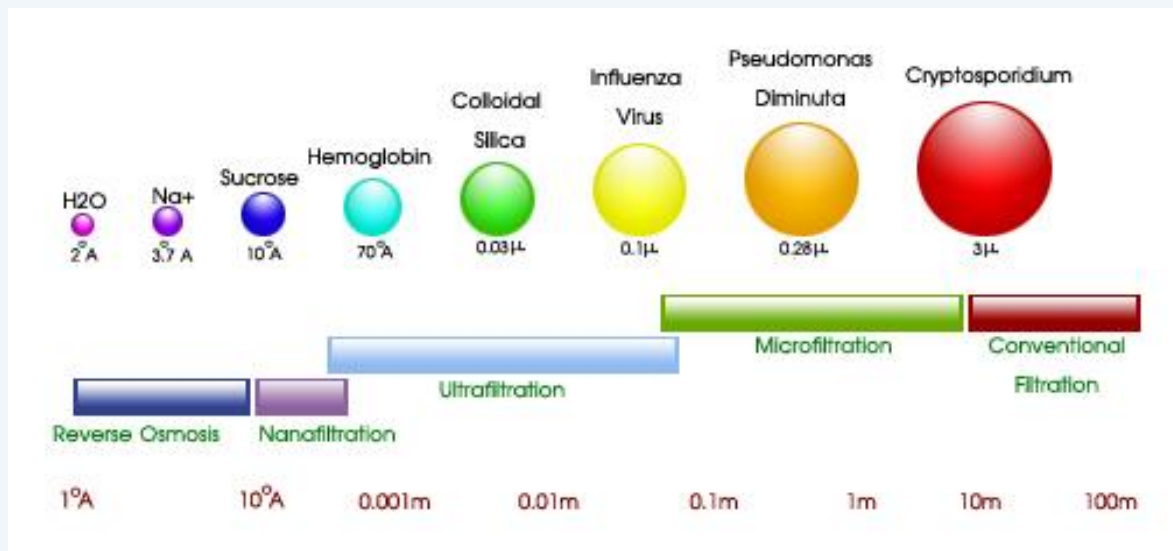
# Overview – what will I discuss today

- My background
  - Academic (only briefly)
  - Working life
    - Primary Roles
    - Other Roles

# Academic background

**First Degree:** Chemical & biological process engineering  
University of Wales Swansea  
First Class  
Recipient of the BOC Shuftan Memorial prize

**Second Degree:** Ph.D. Chemical Engineering  
Membrane technology - Nanofiltration



# Professional Career - GlaxoSmithKline



2004 – Entered company as a ‘Senior Process Engineer’

2006 – Promoted to ‘Principal Process Engineer’

2009 – Promoted to ‘Investigator’

March 2010 Left the company



# Our flagship products: Consumer Healthcare





# Our flagship products: Pharmaceuticals



**Lamictal**<sup>TM</sup>  
lamotrigine

60 Caplets NDC 0173-0933-08  
**VALTRESX**<sup>®</sup>  
(valacyclovir HCl) CAPLETS  
500 mg R only  
Equivalent to 500 mg valacyclovir per caplet.  
See package insert for Dosage and Administration.  
Store at 15° to 25°C (59° to 77°F).  
Do not use if green printed safety seal under cap is broken or missing.  
GlaxoSmithKline  
Research Triangle Park, NC 27709  
4149009 Rev. 10/02

**AVODART**<sup>®</sup>  
(dutasteride)  
Soft Gelatin Capsules  
0.5 mg  
20 Capsules

250/50  
**ADVAIR DISKUS**<sup>®</sup>  
(fluticasone propionate 250 mcg/salmeterol 50 mcg inhalation powder)  
4119077  
Pouch opened: \_\_\_\_\_  
Use by: \_\_\_\_\_

NDC 58160-841-11 R only  
**Diphtheria and Tetanus Toxoids and Acellular Pertussis Adsorbed, Hepatitis B (Recombinant) and Inactivated Poliovirus Vaccine Combined**  
**PEDIARIX**<sup>TM</sup>  
10 x 0.5 mL Single-Dose Vials  
For Pediatric Use Only  
DTaP-Hep Com

**gsk** GlaxoSmithKline  
**Infanrix**<sup>®</sup> **IPV**  
Diphtheria-tetanus  
-acellular pertussis-inactivated polio vaccine  
(DTPa-IPV)  
Suspension for injection

The pack contains  
**1** prefilled syringe with  
**2** separate needles

**1 Dose 0.5 ml**

**Seretide**<sup>TM</sup> **50/100**  
**diskus**<sup>TM</sup>  
salmeterol 50 mcg/fluticasone propion. 100 mcg  
Poudre pour inhalation en récipient unidose  
Inhalatiepoeder, voorverdeeld  
Einzeldosiertes Pulver zur Inhalation  
**60** doses 50 mcg / 100 mcg  
Dosen

**gsk** GlaxoSmithKline

# Simple guide to R&D

Research

“create it”

Technical

“make it”

Safety

“test it”  
(pre-clinical)

Medical

“test it”  
(man)

Regulatory

“register it”

Commercial

“sell it”

Product development





# Some basic Data

- **£34 billion turnover in 2020**
  - £17 billion pharmaceuticals
  - £7 billion vaccines
  - £10 billion consumer products
  - R&D spending was £5 billion!!
- **94,000+ employees**
  - 12,000 in R&D
- **Operate in 96 countries**

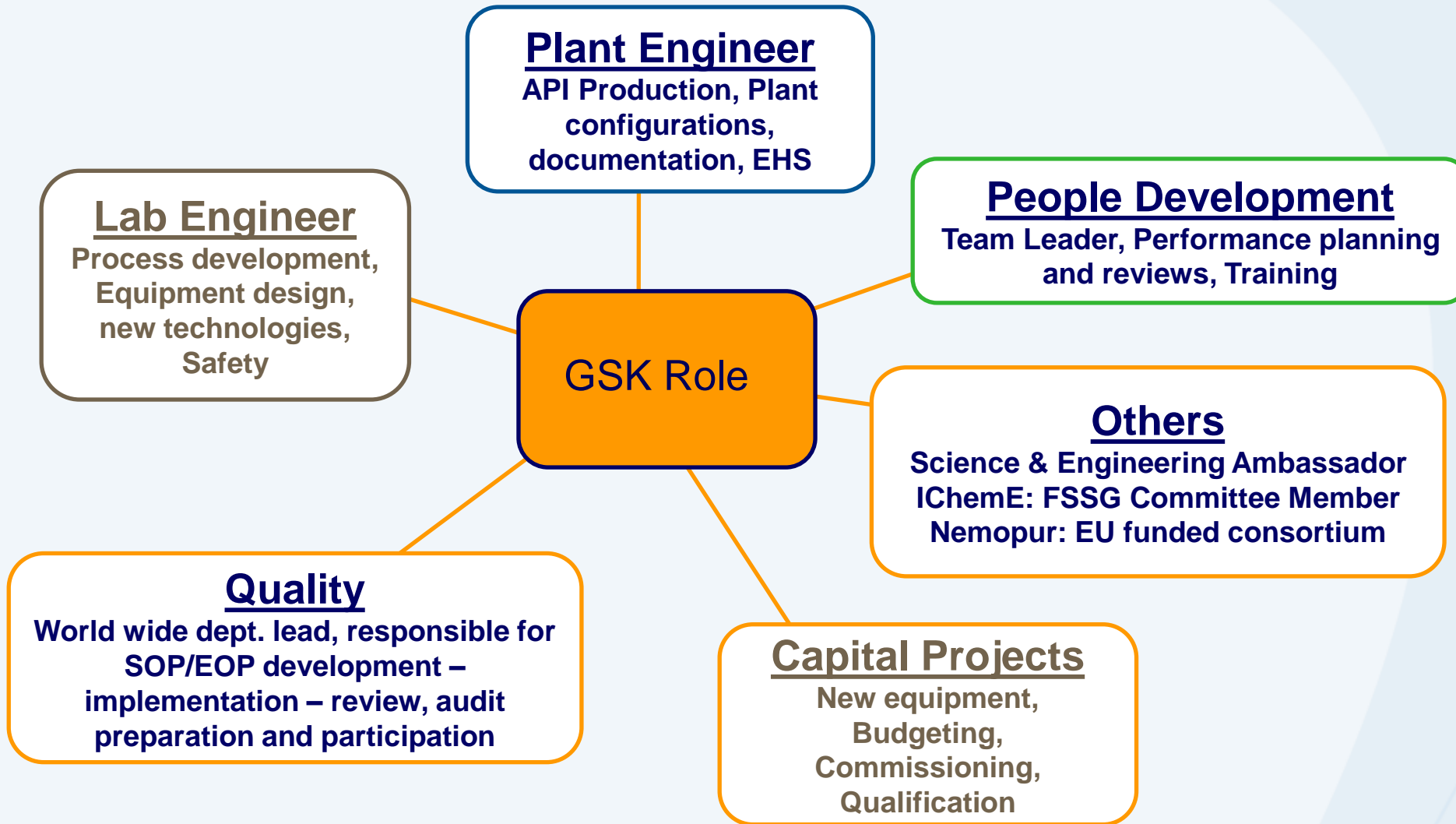


**Dame Emma Natasha Walmsley** [DBE](#)  
(born June 1969)  
Chief executive officer (CEO) of [GlaxoSmithKline](#).

Before GSK, she worked for [L'Oréal](#) for 17 years, and was a non-executive director of [Diageo](#) until 2016.



# Professional background



# Plant Role – API Manufacturing



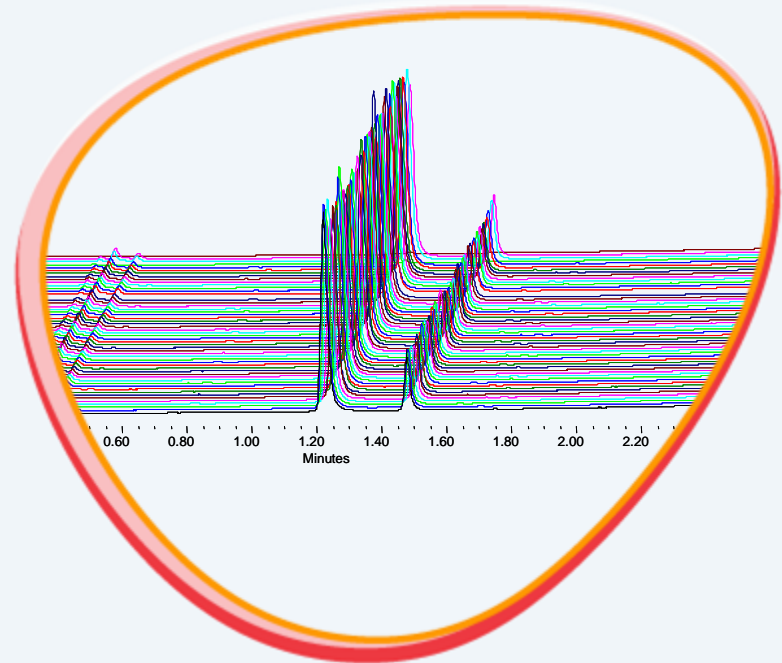
**Making API**

**Operation of Equipment**

**Documentation**

**Risk Assessments**

# Lab Role – API Process Development



**Project leader**  
**Process design**  
**Process understanding**  
**People development**



# Professional background

2004

2005

2006

2007

2008

2009

✚ Research Assistant (UWS)

✚ Senior Process Engineer (GSK)

✚ Principal Process Engineer (GSK)

Investigator (GSK) ✚

Silver

Bronze  
Silver

Gold

Gold

Silver

Vanguard

Recognition of "Key Successes"

Increasing level of responsibility and accountability

# Professional background

2010

2012

2014

2016

2018

2020

 Lecturer

 Senior Lecturer

 Associate Professor

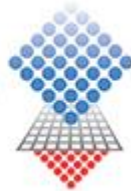
 Chartered Engineer

 FIChemE

Professor 

Current Stats: 46 publications, h-index 19, citations 2,254,  
>£25million total grant income

**Membranology**  
Advanced Membrane Applications



Created in 2012, University spin-out  
Exploiting expertise in membranes  
Currently 3 employees



**APEX**

Created in 2019, Qatar company  
Exploiting expertise in oil/water  
Product launch soon...

- Created Modules:

- EGM85
- EGCM38
- EGA400
- EGAM00
- Strategic Project Management
- Membrane Technology
- Membrane Applications
- Fermentation Technology for Food Applications

- Delivery: (all of the above and...)

- EG339
- EG3062
- EGM14
- EGA319
- EGA326
- EG204
- EG337
- Process Equipment Design
- Equipment Design, Selection & Control
- Bioreactor and Biosystems Design
- Environmental Design Project
- Design Project
- Reactor Design I
- Reactor Design II

- In addition to ~40 tutees, other project students and admin roles every year...



# At the University

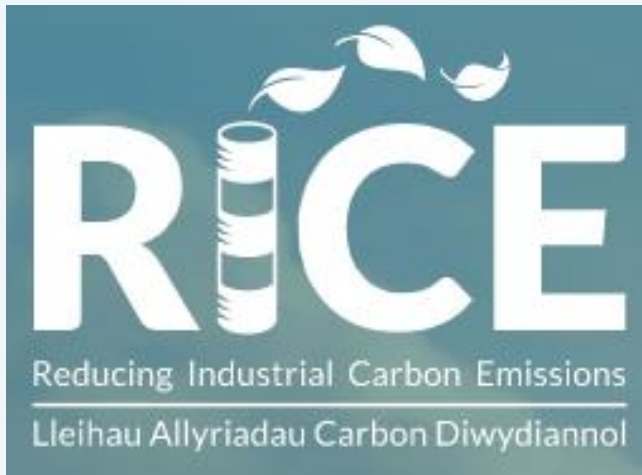


**DEMINE**

Decreasing the Impact  
of Abandoned Mines

<https://mon.uvic.cat/life-demine/>

Research...



<https://www.rice.cymru/>

**Questions**  
**?**