



Medicines & Healthcare products
Regulatory Agency



WS3. Facilitating development of common QA methodology and regulatory convergence

Mark Page



The National Institute for Biological Standards and Control

- UK government Institute
- 300 employees (70% scientific staff)
- WHO International Standards
- Serum, antigen, viruses, bacteria, allergens, cytokines, stem cells etc

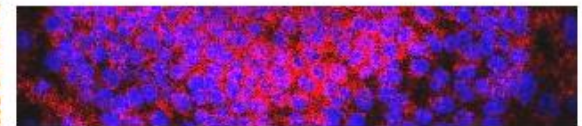




Biological reference materials



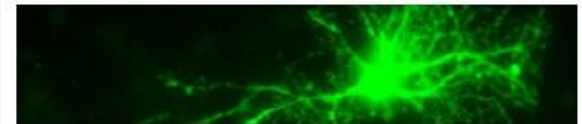
[Influenza Resource Centre](#)



UK Stem Cell Bank



Centre for AIDS Reagents



CJD Resource Centre

News: New strategy to end Cholera

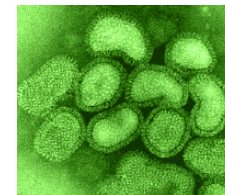
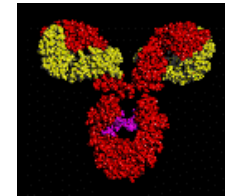
The National Institute for Biological Standards and Control (NIBSC) is a global leader in the characterisation, standardisation and control of biological medicines.

NIBSC plays a major role in assuring the quality of biological medicines worldwide through the provision of biological reference materials, by testing products and carrying out research. Our expert scientists also provide advice on a routine basis and in response to emergencies.

Biological Medicines: Why are they special?

(why does NIBSC exist?)

- Made from biological sources
- Highly complex
- Must be measured by biological effect
- Inherent variability in product, manufacture and test methods
- Special risks (sensitive targets)



Biologicals - Expertise at NIBSC

Vaccines and Toxins

Anthrax
BCG
Botulinum toxin
Cholera
Clostridium difficile
Diphtheria and Tetanus
Hepatitis A
Haemophilus influenza B
HSV
Human Papillomavirus
Influenza
Malaria
Measles, mumps, rubella
Meningococcal
Pertussis
Pneumococcal
Polio
Rotavirus

Shigella
Smallpox
Typhoid
Yellow Fever
Varicella
...

Blood products

Albumin
Alpha-1 Proteinase Inhibitor
Antithrombin
Factor VIII
Factor IX
Factor X
Heparin
Immunoglobulins
Virus-inactivated human plasma
Plasma Pools
...

Tests

Appearance

- Visual inspection

Identity and Potency

- Molecular, Cell-, Antibody-based *in vitro* assays
- Physico-chemical methods
- Imaging
- Animal models, 3Rs

Protocol review

Medicines Control

Independent regulatory testing
(Europe) required for

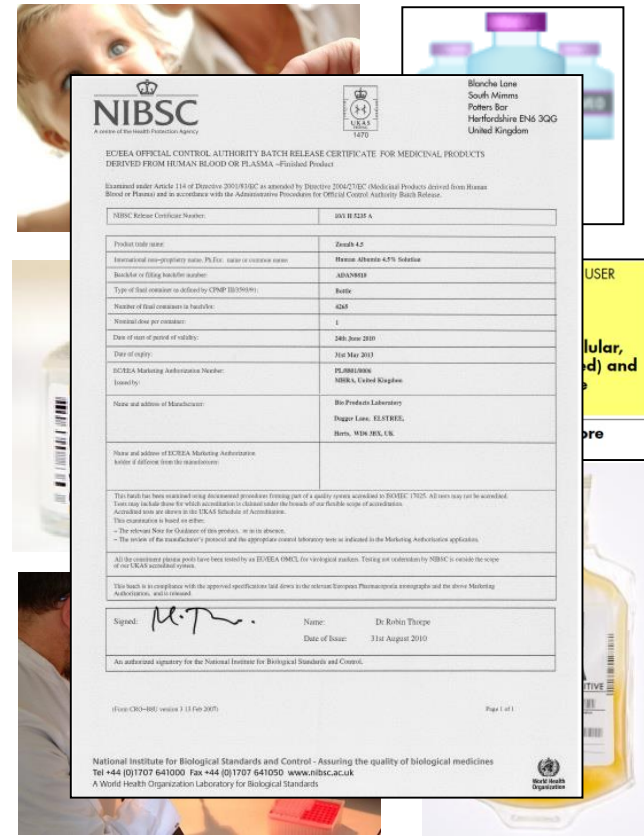
- Vaccines, Blood-derived products, Biotherapeutics

NIBSC is UK Official Medicines
Control Laboratory (OMCL)

Importance of medicines control

- Protects the public
- Free movement of goods
- Keeps manufacturers up to the mark

NIBSC teams tested >4000 batches
of medicine/plasma pools in 2016



NIBSC
A service of the Institute for Biological Standards and Control

**EC/EEA OFFICIAL CONTROL AUTHORITY BATCH RELEASE CERTIFICATE FOR MEDICINAL PRODUCTS
DERIVED FROM HUMAN BLOOD OR PLASMA – Finished Product**

Issued under Article 114 of Directive 2001/83/EC as amended by Directive 2004/27/EC (biological products derived from Human Blood or Plasma) and in accordance with the Administrative Procedures for Official Control Authority Batch Release

NIBSC Release Certificate Number:	SVS R 828 A
Product trade name:	Zenith A2
International non-proprietary name (INN): name in common name:	Bremsi-ethanol 0.75 Solution
Batch/lot or filing number:	ADA58018
Type of final container as defined by CPNP (EU/609):	Bottle
Number of final containers in batch/lot:	424
Normal dose per container:	1
Date of expiry of period of validity:	24th June 2019
Date of expiry:	2nd May 2013
EC/EEA Marketing Authorisation Number:	PL00000000
Locality:	NIBSC, United Kingdom
Name and address of Manufacturer:	Bio Products Laboratory Dagge Lane, ELSTREE, Barns, WDA 3BX, UK
Name and address of EC/EEA Marketing Authorisation holder if different from the manufacturer:	

This batch has been examined using documented procedures forming part of a quality system accredited to ISO/IEC 17025. All tests may not be successful. Tests may be false due to which accreditation is claimed under the limits of our flexible scope of accreditation. Accredited tests are shown in the UKAS structure of accreditation. This examination is based on either:
– The release data on Certificate of this product, or in its absence,
– The review of the manufacturer's protocol and the appropriate control laboratory were so indicated in the Marketing Authorisation application.

All the certificate (please note) have been submitted to EC/EEA OMCL for virological studies. Testing not undertaken by NIBSC is outside the scope of our UKAS accredited system.

This batch is in compliance with the approval specifications laid down in the relevant European Pharmacopoeia monographs and the above Marketing Authorisation, and is released.

Signed: *[Signature]* Name: Dr Robin Thorpe
Date of issue: 31st August 2010

An authorized signatory for the National Institute for Biological Standards and Control.

(Form CRO-BR) version 3 (15 Feb 2007) Page 1 of 1

National Institute for Biological Standards and Control - Assuring the quality of biological medicines
Tel +44 (0)1707 641000 Fax +44 (0)1707 641050 www.nibsc.ac.uk
A World Health Organization Laboratory for Biological Standards

Task 3.1 Development of unified QA approach for licensed vaccines



- Prequalification testing
 - Assay development and optimisation
 - Validation
 - Calibration to International Standards
 - Production of standards and reference materials as needed

Task 3.2 Provision of vaccine potency assays for attenuated and inactivated viral and bacterial vaccines.



- Assay transfer
- training
- Rabies
 - standards and assays available
- Chikungunya
 - Standards in production at PEI
 - Pseudotype neutralisation assays available
- Cholera
 - Standards and assays available
 - Prequalification testing undertaken

Task 3.3 Development of validated assays reference materials for emerging infections.



- Standards, assays and reagents available for exemplar vaccines
 - Rabies
 - Chikungunya
 - Cholera
- Other programmes for emerging pathogens
 - MERS CoV
 - Nipah
 - Lassa
 - Ebola
 - Zika
 - CCHF

Standardisation



Article [Talk](#)

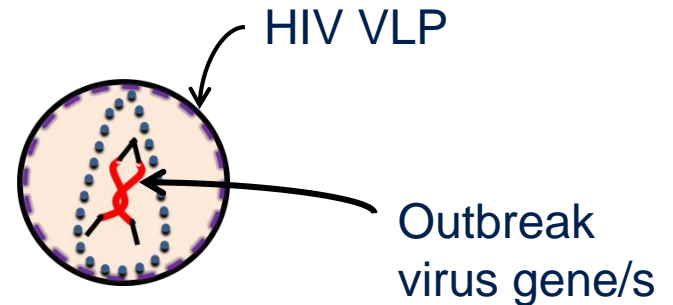
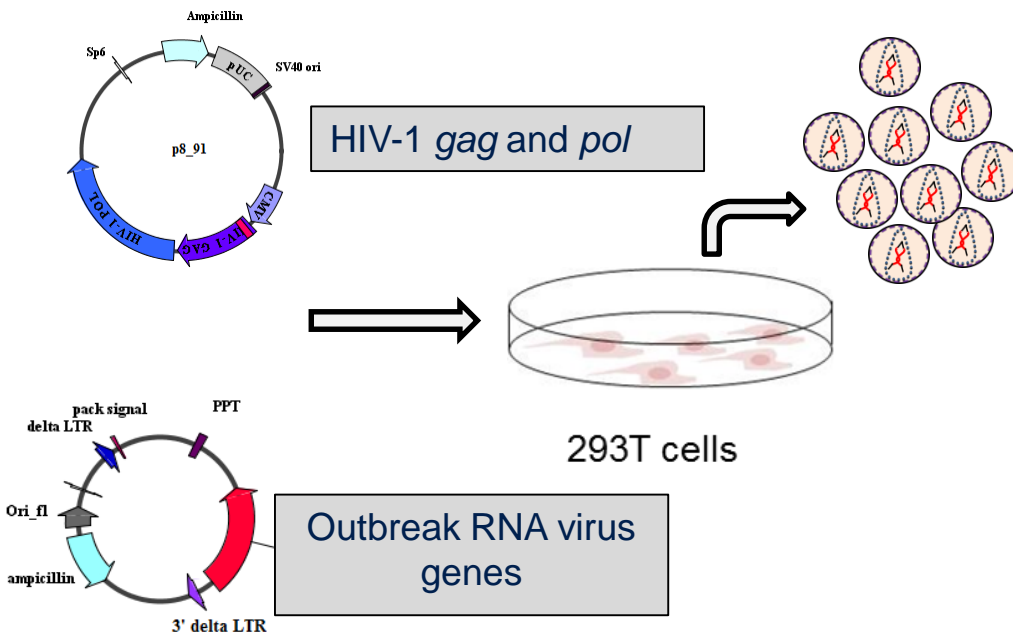
International unit

From Wikipedia, the free encyclopedia

In **pharmacology**, the **International Unit** is a unit of measurement for the amount of a substance, based on **biological activity** or effect. *Italian unità internazionale*), or IE (*German Internationale Einheit*, *Dutch Internationale Eenheid*, *Danish International Enhed*, *Swedish Internationella Enheten*), is used for **hormones**, some **medications**, **vaccines**, **blood products**, and similar biologically active substances.

Chimaeric HIV-outbreak virus RNA particles

Production

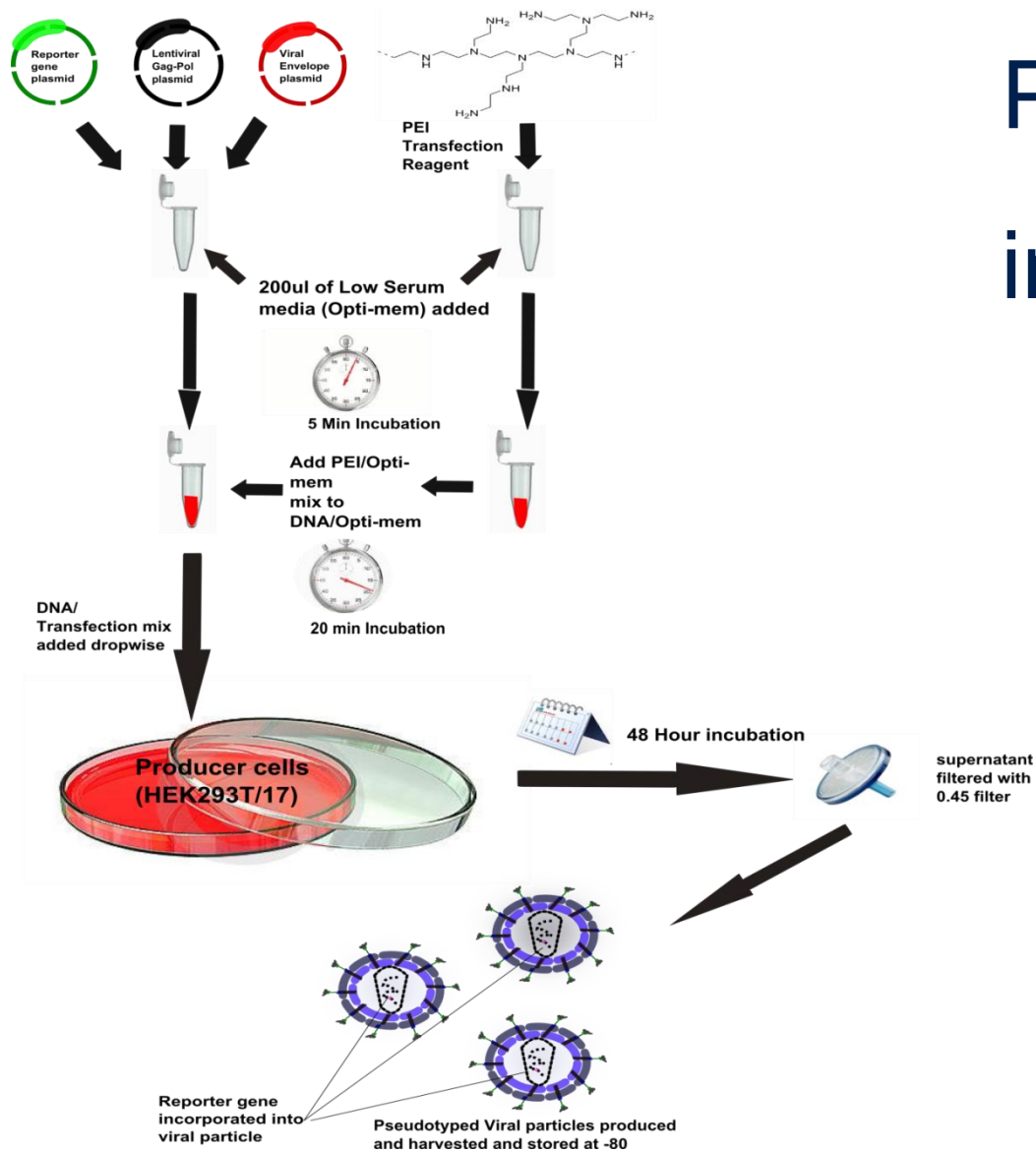


Advantages:

- Safe: non-replicative HIV VLP, non-infectious (lack of Env) no expression of outbreak virus genes (no promoter and added stop codons)
- Easy and fast production
- HIV-1 Δ U3 LTR allows for genome quantification

Mattiuzzo et al., PLoS One, 2015

PV production in 48 hr



Graphical Abstract: Grehan *et al.* MethodsX, 2015

T.3.5 QA and regulatory knowledge dissemination



- Early contact advised
- Free
- NIBSC met with vaccine manufacturers for CMC of Ebola vaccines
- WHO link with NRLs in LMICs

