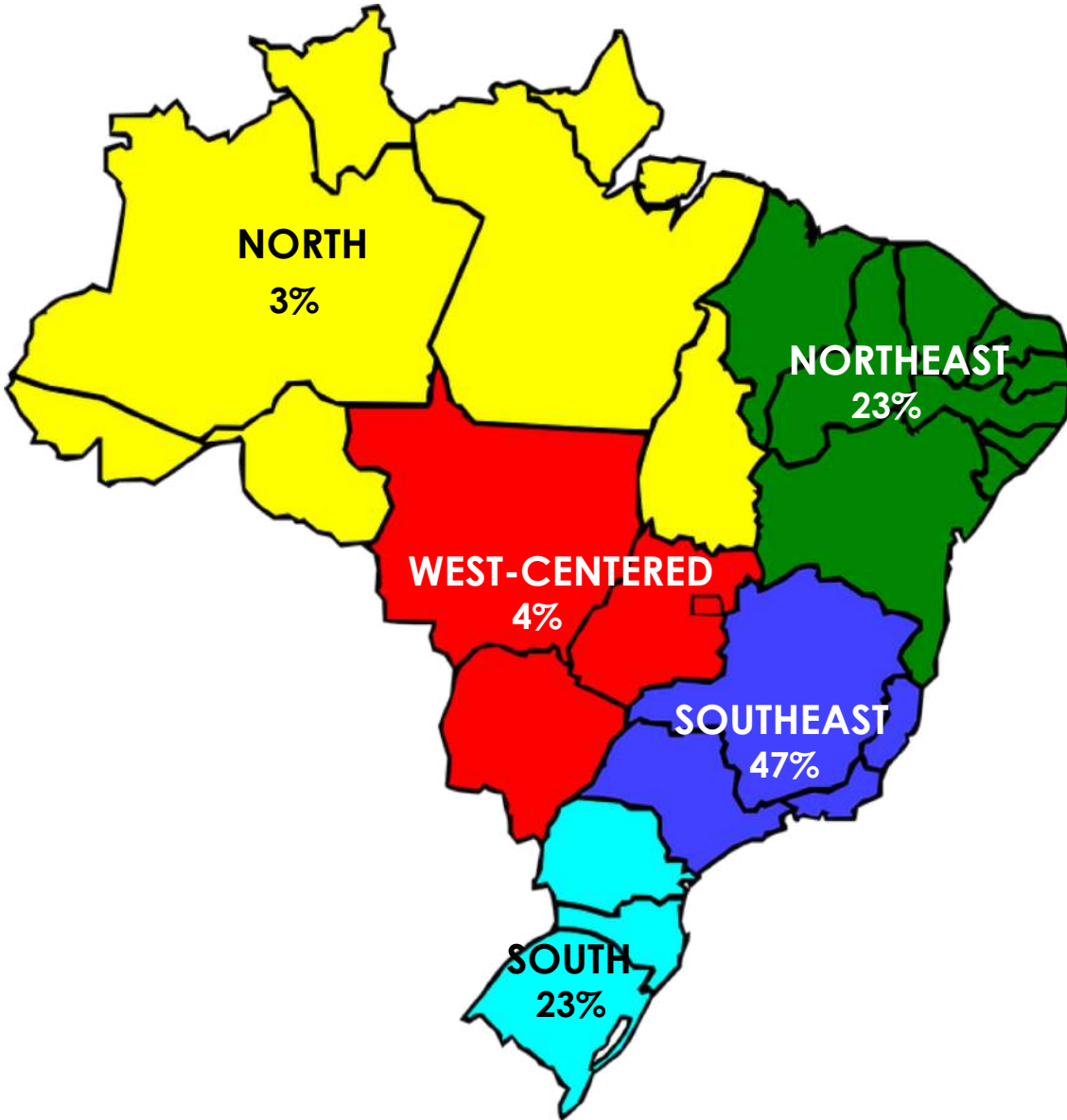
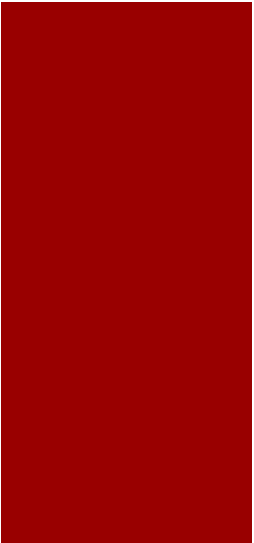


# BRAZIL – a continental country

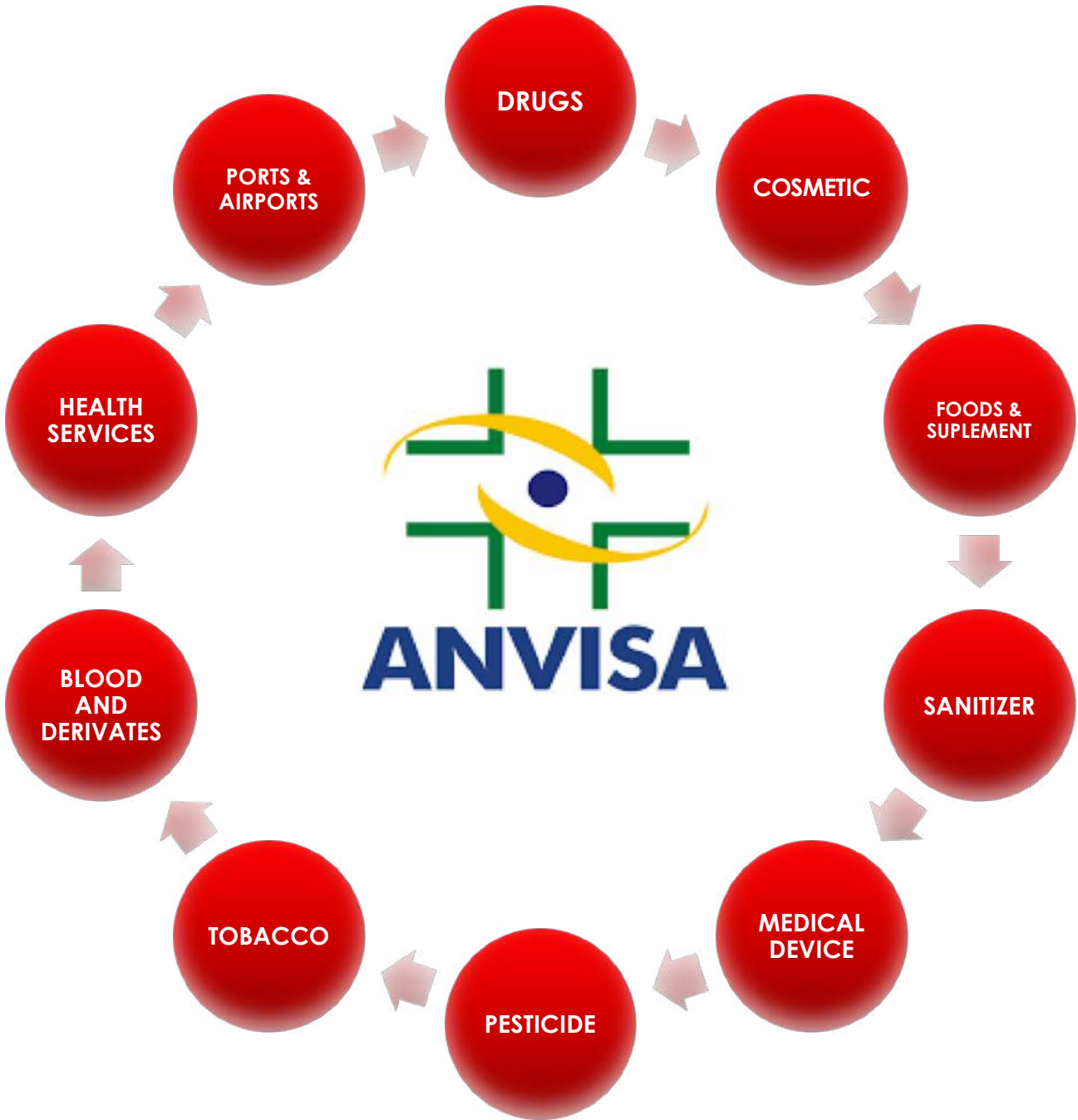


# ANVISA

## BRAZILIAN REGULATORY HEALTH AUTHORITY



- ANVISA – National Agency of Sanitary Vigilance was established in 1999.
- It is an autarchy, directed by the 05 nominated members of it's directory board
- ANVISA's headquarter is located in Brasília, Brazilian capital.
- Currently ANVISA has approximately 2.200 employees.





# DRUG PRODUCT

## REGULATORY CLASSIFICATION

# REGULATORY CLASSIFICATION – TYPE OF API



## SYNTHETIC & SEMISYNTHETIC

• RDC 200/2017

Applicable to:

- NCE
- INNOVATORS
- GENERICS
- BRANDED GENERICS

## BIOLOGIC PRODUCTS

• RDC 55/2010

Applicable to:

- NEW BIOLOGIC
- BIOSIMILARS

## SPECIFIC PRODUCTS

• RDC 24/2011

Applicable to:

- VITAMINS
- ANTIACIDS
- PHYTOCHEMICALS
- OPOTHERAPY
- PARENTERAL
- DEHYDRATION
- CAMPHOR
- OTHERS

## HERBAL MEDICINES

• RDC 26/2014

Applicable to:

- HERBAL MEDICINES
- EXTRACTS
- HERBAL DRUG
- DERIVATIVES

## DINAMIZE MEDICATION

• RDC 26/2007

Applicable to:

- DYNAMIZED
- HOMEOPATHIC
- ANTHROPOSOPHICS
- ANTOHOMOTOXIC

## ALLERGEN

• RDC 233/2005

Applicable to:

- DIAGNOSIS (TESTS)
- TREATMENT (VACCINES)

## PROBIOTICS

• RDC 323/2003

Applicable to:

- LIVE MICROORGANISM
- INACTIVATED MICROORGANISM

## RADIOFARMS

• RDC 64/2009

Applicable to:

- RFU RADIOPHARMS
- NON-RADIOACTIVE COMPONENTS
- RADIONUCLIDES

## NOTIFIED

• RDC 166/2006  
• RDC 107/2016

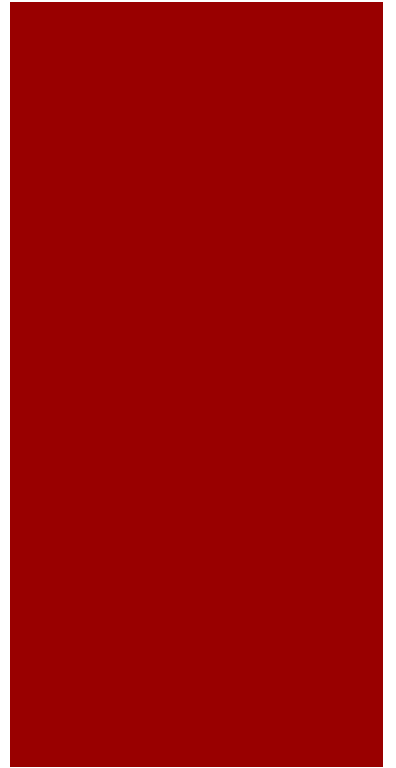
Applicable to:

- LOW RISK MEDICATION (IN 03/09)
- TRADITIONAL USE HERBAL MEDICINES
- LOW POTENCY DYNAMIZES (IN 05/07)

## MEDICAL GASES

• RDC 70/2008

# **SYNTHETIC & SEMISYNTHETIC DRUGS**



# REGULATORY PATHWAY

## SYNTHETIC AND SEMI-SYNTHETIC DRUG PRODUCTS



### NCEs



- New chemical entities (radical innovation)
- Complete package of non-clinical and clinical data
- Pre-approval required by regulatory agency
- About 3 years to register
- Premium price for patented drugs and new therapeutic areas
- Generally, they are listed as RLD (reference medicine)

### INNOVATORS



- Incremental Innovation
- Reduced package of non-clinical data
- Bridge studies and Phase III clinical trial required
- Approximately 3 years for registration approval
- Price approval consisting of:
  - cost of the API,
  - sale price in other countries
  - maximum therapeutic cost in the country

### GENERICS & BRANDED



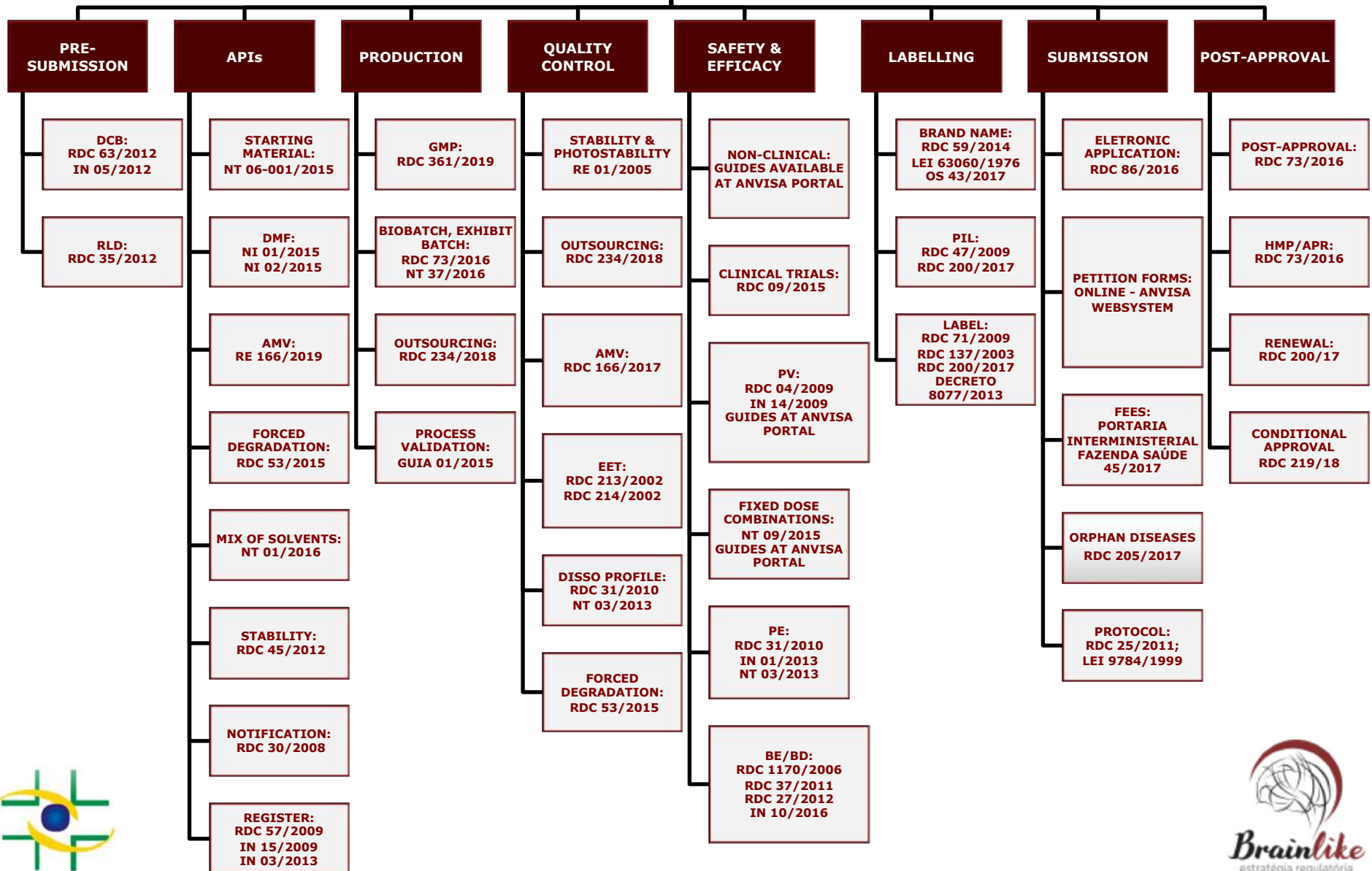
- Comparative trials (PE / BE) against RLD
- About 2 years for registration (prioritized) and 5 years (commodities)
- Priority granted to the first 3 of the market
- Pre-set price
  - 35% below the approved price for the RLD if generic
  - Average cost of existing competitors plus RLD price if similar

### CLONES



- No regulatory dossier submission required
- Exclusive packaging (clone holder brand)
- From 1 to 3 months for registration
- Predefined price (even from matrix drug)

# RDC 200/17 SYNTHETIC & SEMISYNTHETIC





# CMC REQUIREMENTS



- ✓ **DEVELOPMENT REPORT**
  - FORCED DEGRADATION STUDIES – API AND FINISHED PRODUCT
  - DISSOLUTION MEDIA – DEVELOPMENT AND VALIDATION
  - RESIDUAL SOLVENTS
  - PILOT STUDIES AGAINST BRAZIL RLD
  
- ✓ **PROCESS VALIDATION AND BATCH MANUFACTURING RECORD FOR EACH STRENGTH, PHARMACEUTICAL FORM AND PACKING**
  
- ✓ **ANALYTICAL METHOD VALIDATION**
  - API AND FINISHED PRODUCT
  - PERFORMED AT ALL INVOLVED MANUFACTURER SITES (API AND FINISHED PRODUCT)
  - TEST PROCEDURE, VALIDATION PROTOCOL + REPORT AND RAW DATA MANDATORY
  - FOR PHARMACOPOEIC METHODS: METHOD VERIFICATION ON SAME BASE
  
- ✓ **STABILITY STUDIES**
  - ZONE IVB STABILITY IN 03 BATCHES
  - API STABILITY (FOR THE FP MANUFACTURER COUNTRY CLIMATIC ZONE)
  - ADITIONAL STUDIES (PHOTOSTABILITY, AFER RECONSTITUTION, OTHERS)
  - 6 MONTHS ACCELERATE AND PARTIAL LONG TERM FOR SUBMISSION
  - +36 MONTHS OF SHELF-LIFE ONLY WITH LONG TERM STABILITY REPORT
  
- ✓ **CoA FOR THE API AND FINISHED PRODUCT**

# ICH versus ANVISA



## ICH

## ANVISA

### ANALYTICAL METHOD VALIDATION

- summary of results



### ANALYTICAL METHOD VALIDATION

- protocol
- report
- chromatograms

### PROCESS VALIDATION

- declaration of process validation performance



### PROCESS VALIDATION

- summary of process validation (as per Anvisa's guideline)

### BATCH MANUFACTURING RECORD

- not required



### BATCH MANUFACTURING RECORD

- required to present excuted batch record of higher and lower dose

### STABILITY STUDY

- table of results



### STABILITY STUDY

- protocol
- report
- forced degradation studies



# PROCESS VALIDATION

# AT ANVISA...



The summary report of the validation of the manufacturing process is the compilation of information obtained during the process validation of the drug product subject to registration or post-registration. The purpose of the validation summary report is to know the product and its production process before submitting it for registration, thereby reducing the number of post-registration petitions, such as moderate and larger process changes, as per Post-Registration specific guidelines.

**GUIDE FOR PREPARING THE SUMMARY REPORT VALIDATION OF  
DRUG PRODUCTS MANUFACTURING PROCESS**

**GUIA nº 01, versão 02, de 30 de junho 2017**

# VALIDATION SUMMARY AND PATE

The **PURPOSE** of the validation summary report is to **KNOW** the product and its production process before submitting it for registration, thereby reducing the number of post-registration petitions, such as moderate and larger process changes.

In situations where pilot batch registration is allowed, full process validation data is not available. In such cases, the information from the first stage of process validation - process design shall be provided. **This step is performed during product development and production scheduling, and should be included in the Master Validation Plan.**

**It is the definition of the critical parameters for the product quality and the controls in process to be used in the validation of the industrial lots.**

# EXAMPLES



Etapas	Parâmetros Críticos	Comentários
WEIGHT	Weighing Check	To be monitored
WET GRANULATION & DRYING	Amount and speed of addition of granulating agent, mixing speed, time, order of addition	To be monitored Drying uniformity (humidity)
DRY GRANULATION	Compression Parameters	Monitored or sampled for IPQC
MIX	Mixing Speed, Time	To be monitored Uniformity of the mixture should be checked
COMPRESSION	Setup parameters, speed, pressure	To be monitored Sampling and IPQC
FLUIDIZED BED	Spray Speed, Jet Temperature, and Pump Pressure Product	To be monitored Appearance, weight, release tests
PRIMARY PACKING	Sealing Temperature, Speed	To be monitored Sealig test



# ANALYTICAL METHOD VALIDATION

# RDC 166'17 x RE 899'03 x ICH



RDC 166*	RE 899	ICH
Establishes criteria for validation of analytical methods.	Guide for analytical methods validation	Presents a discussion of the characteristics for consideration during the validation and does not necessarily seek to cover the testing that may be required for registration in and is not intended to provide direction on how to accomplish validation.
Applies to analytical methods used in pharmaceutical ingredients (including excipients)	Not discussed	Not discussed
Applied to the investigational products used in clinical trials	Not discussed	Not discussed
Additional documentation and tests may be requested at any time by Anvisa	Used to be requested by queries after evaluation	Not discussed
All relevant data obtained during the performance of the analytical validation, as well as the formulas used for calculation, must be filed, together with the request of interest, for Anvisa's evaluation.	Used to be requested by queries after evaluation	Summary is accepted
It will be accepted characterized standard, but not of working standard;	It was accepted only compendial standards, if they are available	Not discussed
Protocol, analytical procedures, parameters, acceptance criteria, report, raw data (chromatograms) should be presented;	Used to be requested by queries after evaluation	Summary is accepted



# ANALYTICAL METHOD VALIDATION



## WHAT HAS TO BE VALIDATED ?

- In case of analytical methodology not described in pharmacopoeias or official forms, duly recognized by ANVISA, it should be validated.
  
- The analytical methodology shall be revalidated:
  - Changes in the synthesis of the active substance;
  - Changes in the composition of the finished product;
  - Changes in the analytical procedure.



**SOME OTHER CHANGES MIGHT REQUIRED A NEW VALIDATION.  
DECISION TREE BASED ON RISK ASSESSMENT SHALL BE APPLIED.**

# ANALYTICAL METHOD VALIDATION



In the case of analytical methodology not described in official pharmacopoeias or compendiums.

**Specificity & Selectivity**

**Linearity**

**Interval**

**Accuracy**

**Repetibility**

**Precision**

**Intermediate precision**

**Reproductibility**

**LOQ & LOD**

**Robustness**

According to the test classification according to its purpose.

# ANALYTICAL METHOD VALIDATION



## WHAT IS METHOD VARIFICATION ?

Documented evidence that a previously validated method performs as intended in the environment in which it is being applied.

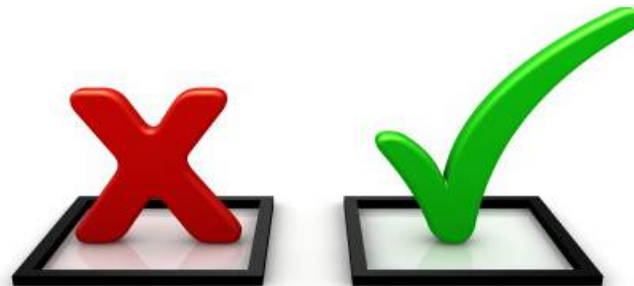
In case of transfer of validated methodology from national companies to pharmaceutical equivalence centers. Or between companies of same group:

➔ **Specificity & Selectivity**

➔ **Accuracy**

➔ **Precision**

Copy of all original documentation of methodology validation should be attached.



# #TIP



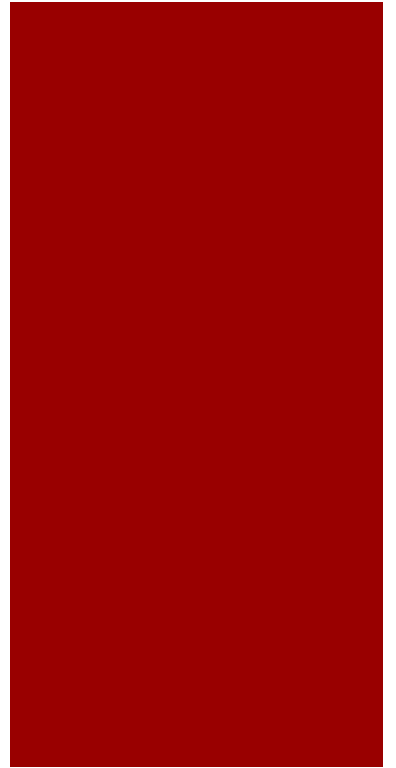
- **Specificity (selectivity):** In chromatographic methods, the necessary precautions must be taken to ensure the purity of the chromatographic peaks, and the peak purity should be demonstrated. Chromatograms are **MANDATORY** for specificity and these records should be in a readable form and in a manner that preserves the content and meaning for a proper evaluation. Chromatograms records as screen shot lose the capability of show a more detailed viewing of baselines, peaks or retention times.

- The characterization report should contain the data obtained from applicable techniques to the characterization of each chemical substance, for example thermogravimetry, melting point, differential scanning calorimetry, IR-spectroscopy, mass spectrometry, nuclear magnetic resonance, elemental analysis (carbon/ hydrogen/ nitrogen), X-ray diffraction, optical rotation, chromatographic methods, among others. Besides characterization data, the following information should be included in the report: batch number and shelf life of the substance used in the characterization; common Brazilian designation or international non-proprietary name; CAS number; chemical name; synonymy; molecular and structural formula; molecular weight; physical form; physical-chemical properties; impurities profile; handling and conservation care; certificate of analysis proving the identity, content and validity of the characterized reference standard.

- **Robustness:** According to RDC 166, the following parameters should be changed: mobile phase pH, mobile phase composition, column, temperature and flow rate. Please, clarify if the other parameters were changed in Validation Report MVR/PAT/004/00 (not received).

- **Linearity:** According to RDC 166, the residue dispersion graphic, accompanied by its statistical evaluation, should be presented.

# **BIOLOGICAL PRODUCTS**



# REGULATORY PATHWAY

## BIOLOGIC PRODUCTS



### NEW BIOLOGICAL PRODUCT

### DEVELOPMENT BY COMPARABILITY

### INDIVIDUAL DEVELOPMENT



- Radical innovation
- Complete package of non-clinical and clinical data
- Pre-approval required by regulatory agency
- Approximately 1-3 years for registration approval
- Might be subject to prioritization of analysis
- Premium price for patented drugs and new therapeutic areas

- Biosimilars
- Reduced package of non-clinical data
- Comparator must be pre-validated by Anvisa
- Approximately 1-3 years for registration approval
- Price approval subjected to comparator and therapy cost locally

- Incremental Innovation
- Complete package of non-clinical and clinical data
- Comparator is not mandatory
- Approximately 1-3 years for registration approval
- Price approval subjected to comparator and therapy cost locally

# DEVELOPMENT ROUTE

## BIOLOGIC PRODUCTS



- ✓ **DEVELOPMENT BY COMPARABILITY:** it is the regulatory route that can be used by a biological product to obtain registration with the regulatory authority, in which the comparability exercise was used in terms of quality, efficacy and safety, between the product developed to be Comparative biological product;
- ✓ **INDIVIDUAL DEVELOPMENT PATH:** it is the regulatory route that can be used by a biological product to obtain registration with the regulatory authority, in which it is necessary to present total data on the development, production, quality control and non-clinical data and clinical trials to demonstrate the quality, efficacy and safety of the product, in accordance with the provisions of this Resolution.

# BIOSSIMILAR CONCEPT AT BRAZIL

## BIOLOGIC PRODUCTS



The products known internationally as "biossimilars" are those registered in Brazil by means of development by comparability, recommended by RDC 55/2010.

The development of these products is done through an exercise of comparability with respect to the comparative biological product (biological product registered with the submission of a complete dossier).

The main objective of comparability is to demonstrate that there are no significant differences in quality, efficacy and safety between the two products.

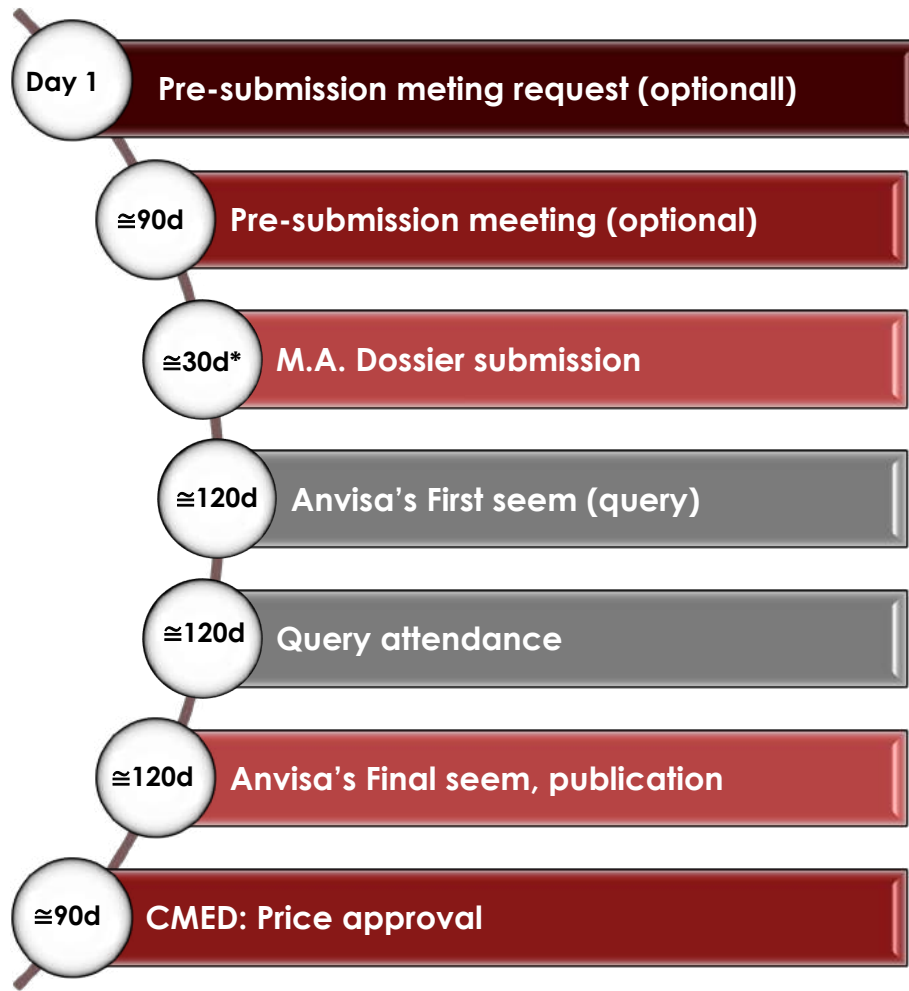
Thus, the biossimilar product need not establish the efficacy and safety of the molecule, since these have already been established by the biological comparator product.

The performance of specific studies to demonstrate interchangeability, in turn, is not a regulatory requirement for the approval of a biossimilar.

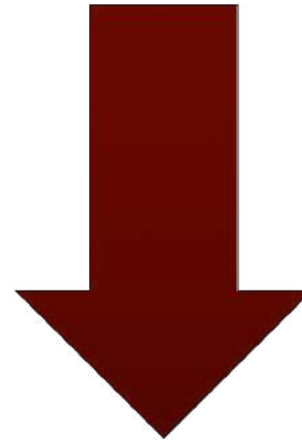
Therefore, we consider that the definition on interchangeability at the time of sanitary registration of the product is not applicable. It is worth noting that the requirements of RDC 55/2010 for registration of biossimilar products are in line with the current recommendations of the World Health Organization (WHO) and internationally recognized Guides of other Regulatory Agencies, such as EMA, Health Canada and FDA.



# BIOLOGICS: REGULATORY PATHWAY (RDC 50'10)



≈18 months



- ✓ Phase II + Ongoing Phase III studies
- ✓ Comparability pathway
- ✓ Waiver for local (importer) QC analysis
- ✓ OS 45/2018, procedure of analysis

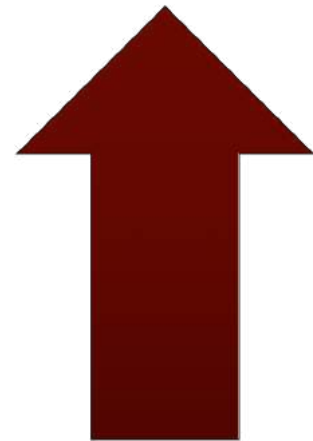
**ITEMS FLEXIBILIZED**



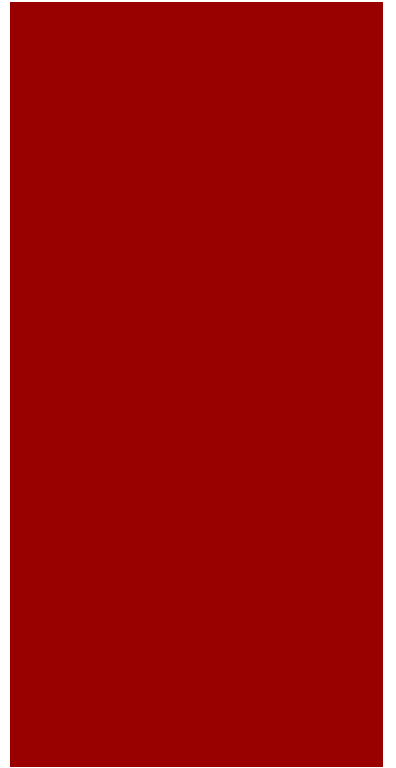
**COMPULSORY ITEMS**

- ✓ M.A. approval\* (country of origin)
- ✓ GMP approved site
- ✓ Transport validation
- ✓ Complete quality data pack

*\* recommended*



# ORPHAN DRUGS



# RARE DISEASES

## AS PER ANVISA'S CONCEPT (RDC 205'17)



**"RARE DISEASE: ONE THAT AFFECTS UP TO SIXTY-FIVE PEOPLE OUT OF EVERY ONE HUNDRED THOUSAND INDIVIDUALS, AS DEFINED BY THE NATIONAL POLICY FOR COMPREHENSIVE CARE FOR PERSONS WITH RARE DISEASES, BASED ON NATIONAL OFFICIAL DATA OR, WHEN NONEXISTENT, DATA PUBLISHED IN TECHNICAL AND SCIENTIFIC DOCUMENTATION".**

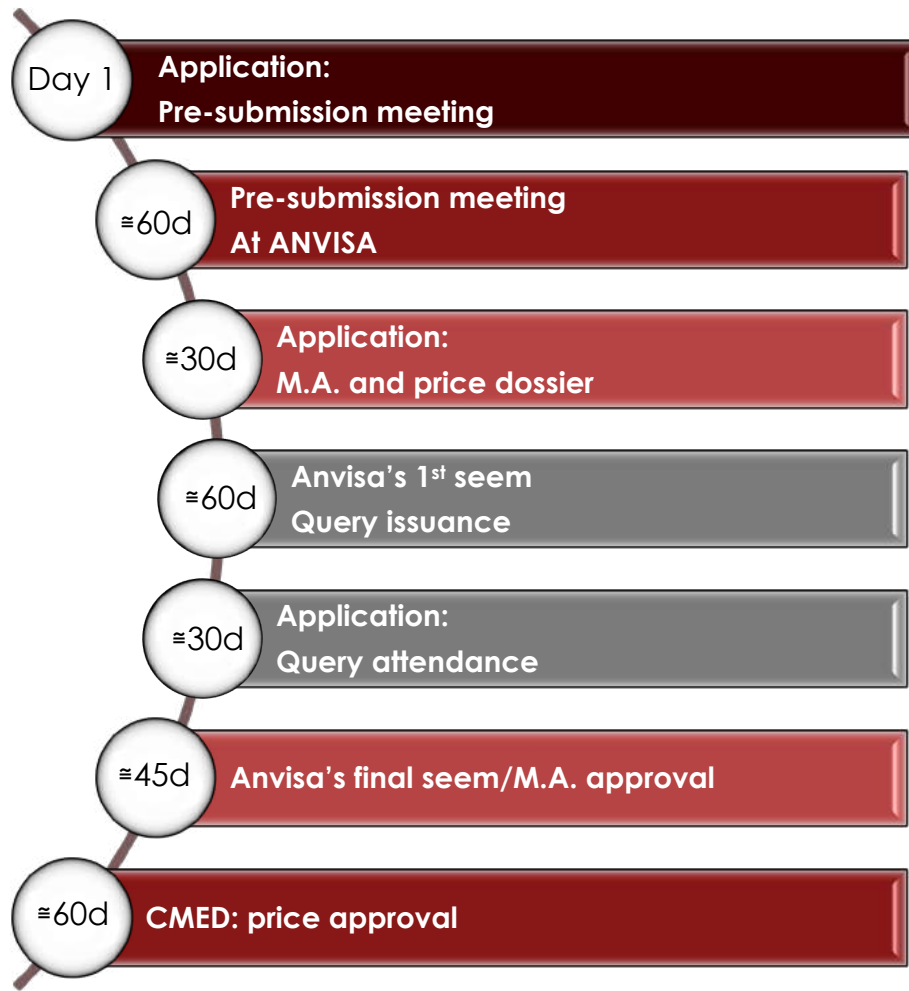
The rare disease pathway is applied for a **new drug product** that has the purpose of treating, diagnosing or preventing the rare disease and who:

- I. be used in a serious debilitating condition\*; and
- II. proposes to change in a clinically significant way the evolution or make possible the remission of the disease.
- III. global and national data on the prevalence and incidence of the rare disease for which the drug will be indicated; and
- IV. document proving the designation of a rare disease drug by another regulatory authority, when available.

If the application for a new drug product for rare disease is not confirmed during the technical analysis of petitions for the approval of clinical trials and registration of a new drug, the application shall be rejected.

*\*serious debilitating condition:* disease or condition associated with irreversible morbidity or high probability of death, unless the course of the disease is discontinued.

# RARE DISEASES: REGULATORY PATHWAY (RDC 205'18)



≈9 months



- ✓ Anvisa's GMP protocol
- ✓ Ongoing Zone IVb stability
- ✓ Phase II + Ongoing Phase III studies
- ✓ Shifting validation OR Importer QC
- ✓ Priority Review is now submitted with the MAA application

**ITEMS FLEXIBILIZED**

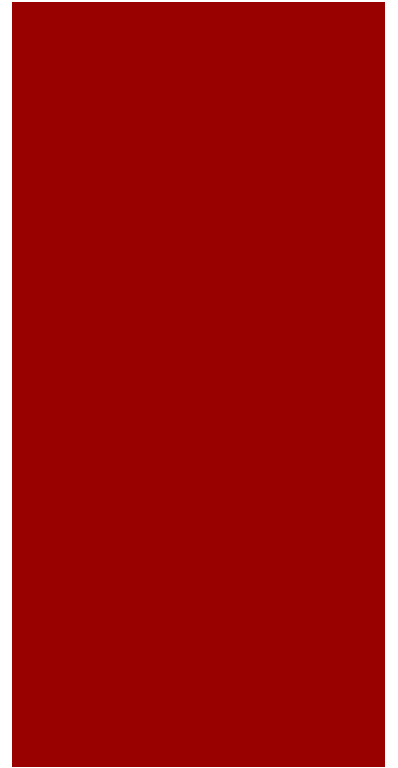
**COMPULSORY ITEMS**

- ✓ M.A. approval\* (country of origin)
- ✓ Orphan disease status
- ✓ GMP approved site
- ✓ Complete quality data pack

\* recommended



# **SAFETY & EFFICACY PROOFS**

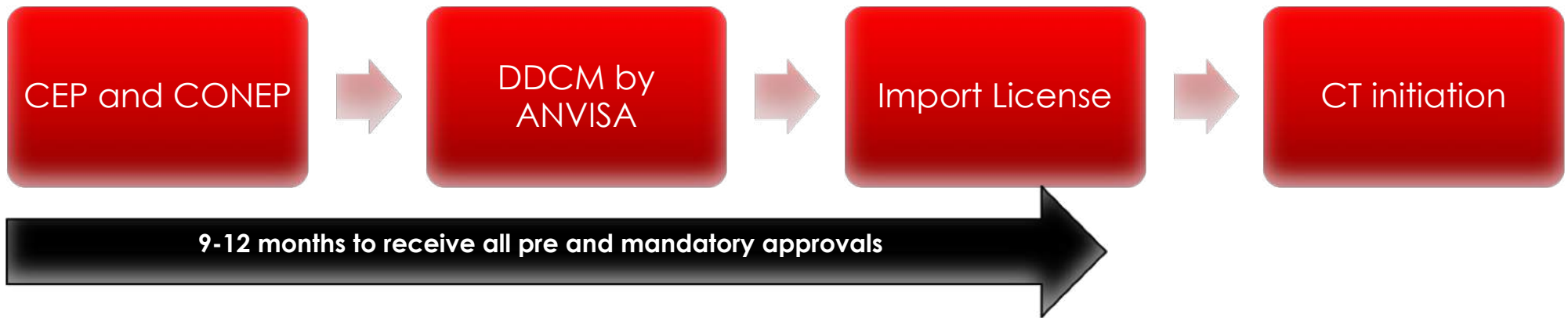


<b>PE</b> <b>(Pharmaceutical Equivalence)</b>	<b>BE</b> <b>(Bioequivalence study)</b>
General Concepts	
<ul style="list-style-type: none"> <li>▪ Mandatory: same batch for PE+BE and Zone IVB stability studies.</li> <li>▪ The innovator must be a Brazilian RLD, locally acquired.</li> <li>▪ Only REBLAS centers are allowed to acquire RLD samples for PE+BE conduction.</li> </ul>	
Samples	
01 batch of each strength for PE (except NS /MDIs/DPIs = 03 batches)	01 batch of higher strength for BE (same batch from PE study)
Leadtime	
45-90 days	in average 04-06 months
Specific Requirements	
Bio exemption based on BSC is accepted if proved at a REBLAS center	FAST+FED for modified release oral solids and some specific active drugs

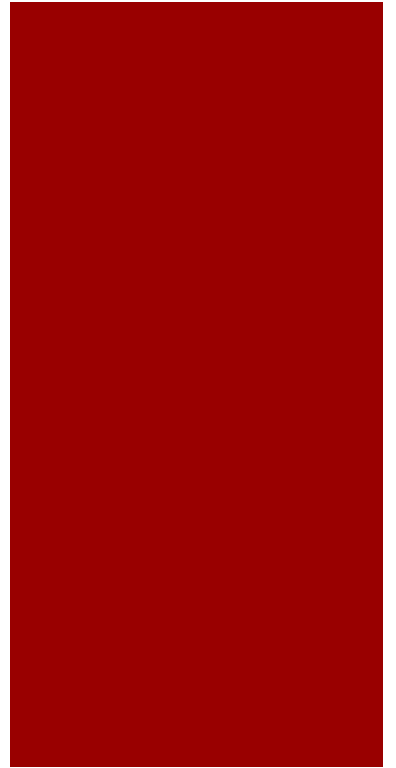
# CLINICAL TRIALS



Conduction of clinical trials with drugs in Brazil requires prior approval by Committees for Ethics in Research (CEPs), in certain cases, by the National Commission for Ethics in Research (CONEP) and, except for Bioequivalence, Bioavailability and Phase IV studies the prior approval by the National Health Surveillance Agency (ANVISA), through an application named DDCM (Drug Product Clinical Development Dossier).



# CTD APPLICATIONS





# ANVISA CTD GUIDE



Published on August 14th 2019

# M1



- ✓ **Index / ToC**
- ✓ **Justification**
- ✓ **Copy of Technical Requirement**
- ✓ **Company operating license**
- ✓ **Certificate of Technical Responsibility**
- ✓ **Good Manufacturing Practice (GMP)**
- ✓ **Communications with the Agency**
- ✓ **Prioritization**
- ✓ **Global Regulatory Situation**
- ✓ **Evaluation report of other agencies**
- ✓ **Package Leaflet and Labeling**
- ✓ **Literature data (hyperlink)**
- ✓ **Justification for Bioisention**
- ✓ **BD / BE Study Identification**
- ✓ **List of National Researchers**
- ✓ **API, Anvisa Registration (CADIFA)**
- ✓ **API, Good Manufacturing Practices**
- ✓ **API, Labeling**
- ✓ **Last Modifications (variations)**
- ✓ **Conditional Approval (if any)**
- ✓ **Electronic media**

# M3

## API QC

3.2.S.4.1 Specification of Drug Substance

## API QC

3.2.S.4.1 Specification of Drug Substance

3.2.S.4.2 Analytical Procedures

3.2.S.4.5 Justification of Specification

3.2.S.4.3 Validation of Analytical Procedures

3.2.S.4.4 Batch Analyses

## API & DRUG PRODUCT MANUFACTURERS QC

→ COMPARATIVE TABLE WITH SPECS  
OF THE API AND DP MANUFACTURERS

## API & DRUG PRODUCT MANUFACTURERS QC

→ SPECIFICATION

→ ANALYTICAL PROCEDURE

→ SPECS JUSTIFICATION

→ AMV

→ CoA

# M3

## **EXCIPIENTS QC**

- 3.2.P.4.1 Specifications
- 3.2.P.4.4 Justification of Specifications
- 3.2.P.4.2 Analytical Procedures
- 3.2.P.4.3 Validation of Analytical Procedures

Not provided in CTD

## **EXCIPIENTS QC BY THE DP & EXCIPIENT MANUFACTURERS**

**→ REQUIRED DATA FROM BOTH**

**→ CoA FROM BOTH**

# M3



## **DP MANUFACTURING PROCESS**

3.2.**P**.3.3 Description of Manufacturing Process and Process Controls

→ **PRODUCTION & QC REPORTS  
IN ACCORDANCE TO RDC 200'17**

**PRODUCTION ORDERS (EBR)**

# M3



## **DP QC – DRUG PRODUCT MANUFACTURER**

3.2.P.5.1 Specification(s) of Drug Product

**→ COMPARATIVE TABLE OF  
DP SPECS: SHELF-LIFE AND  
RELEASE**

3.2.P.5.3 Validation of Analytical Procedures

**→ AMV PROTOCOL AND REPORT**

## **DP QC – DRUG PRODUCT IMPORTER (BRAZIL MA HOLDER)**

Not provided in CTD

**→ QC REPORT AND CoA PERFORMED  
BY THE IMPORTER**

# M3



## COMPARATIVE TABLES

Not provided in CTD

- **MASTER FORMULA (POST-APPROVALS)**
- **MANUFACTURING PROCESSES (POST-APPROVALS)**
- **BATCH SIZE (POST-APPROVALS)**
- **COMPARATIVE STUDIES (COMPARATIVE IMPURITY PROFILE, DIFFERENCES OF ANALYTICAL PROCEDURES, COMPARATIVE DISSOLUTION PROFILE)**

# TRANSITION



**IS THE DOSSIER MIGRATION ALREADY APPROVED BY ANVISA FOR CTD  
FORMAT COMPULSORY?**

**No, but it is encouraged that the quality part (Module 3) be reformatted to facilitate  
change management throughout the product life cycle.**

**It is recommended that the reformatting company make a statement that the quality  
information is exactly the same as that already approved. It is the company's choice to  
migrate to CTD format, but once the new format is adopted, all subsequent petitions  
must follow the format, including the Product Change History protocol, as described  
in 3.2.R.**



# TRANSITION



**IS IT POSSIBLE TO MAKE A POST-REGISTRATION IN CTD FORMAT NOW AND REFER TO THE OLD FORMAT DOSSIER?**

**YES**, it is possible to indicate the checklist item where the approved information is in the old dossier.

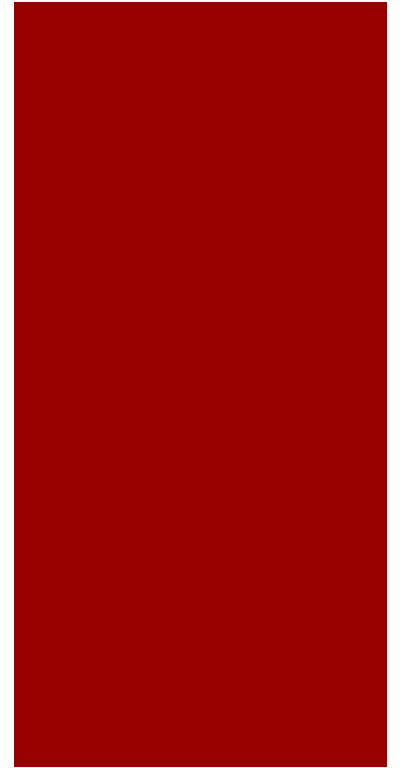
**IF DOES THE COMPANY CHANGE THE DOCUMENT WHEN IT MUST SUBMIT TO ANVISA?**

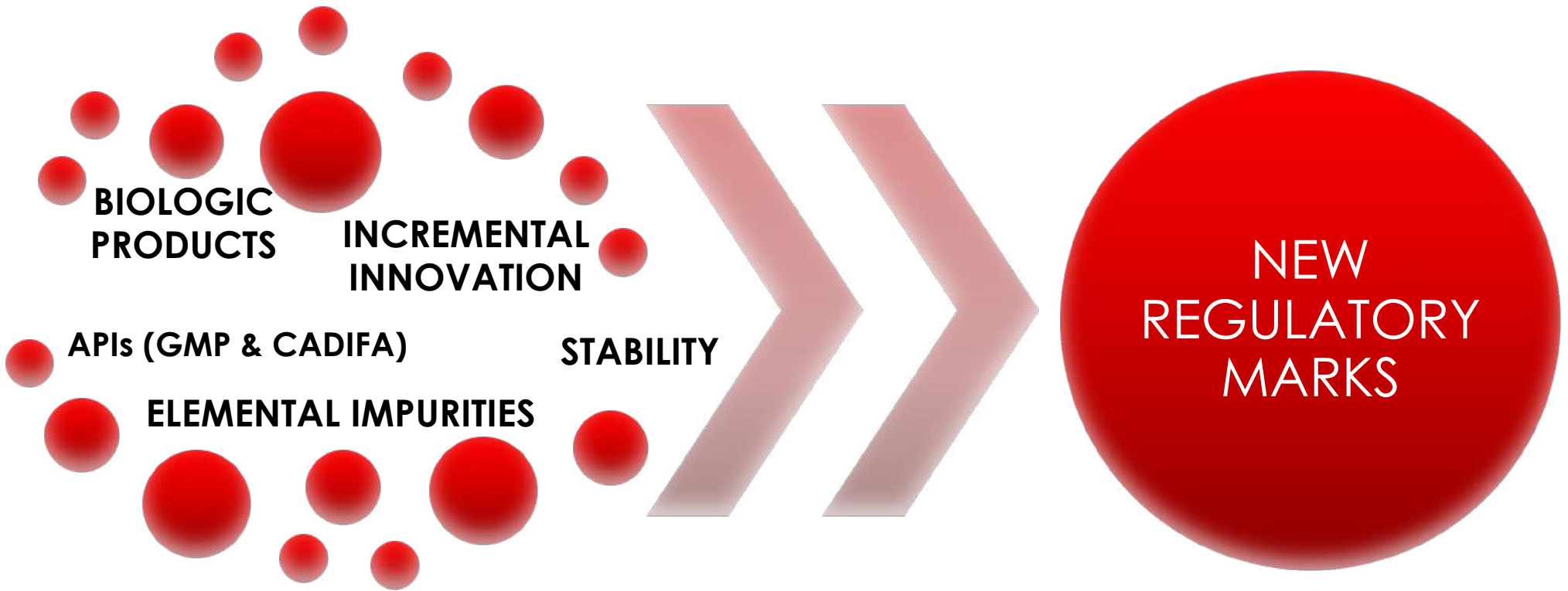
**Preferably in a post approval change petition.**

**Ideally, it should be presented separately from the change so that changes can be verified between the original dossier and the petition dossier.**

# **REGULATORY TRENDS**

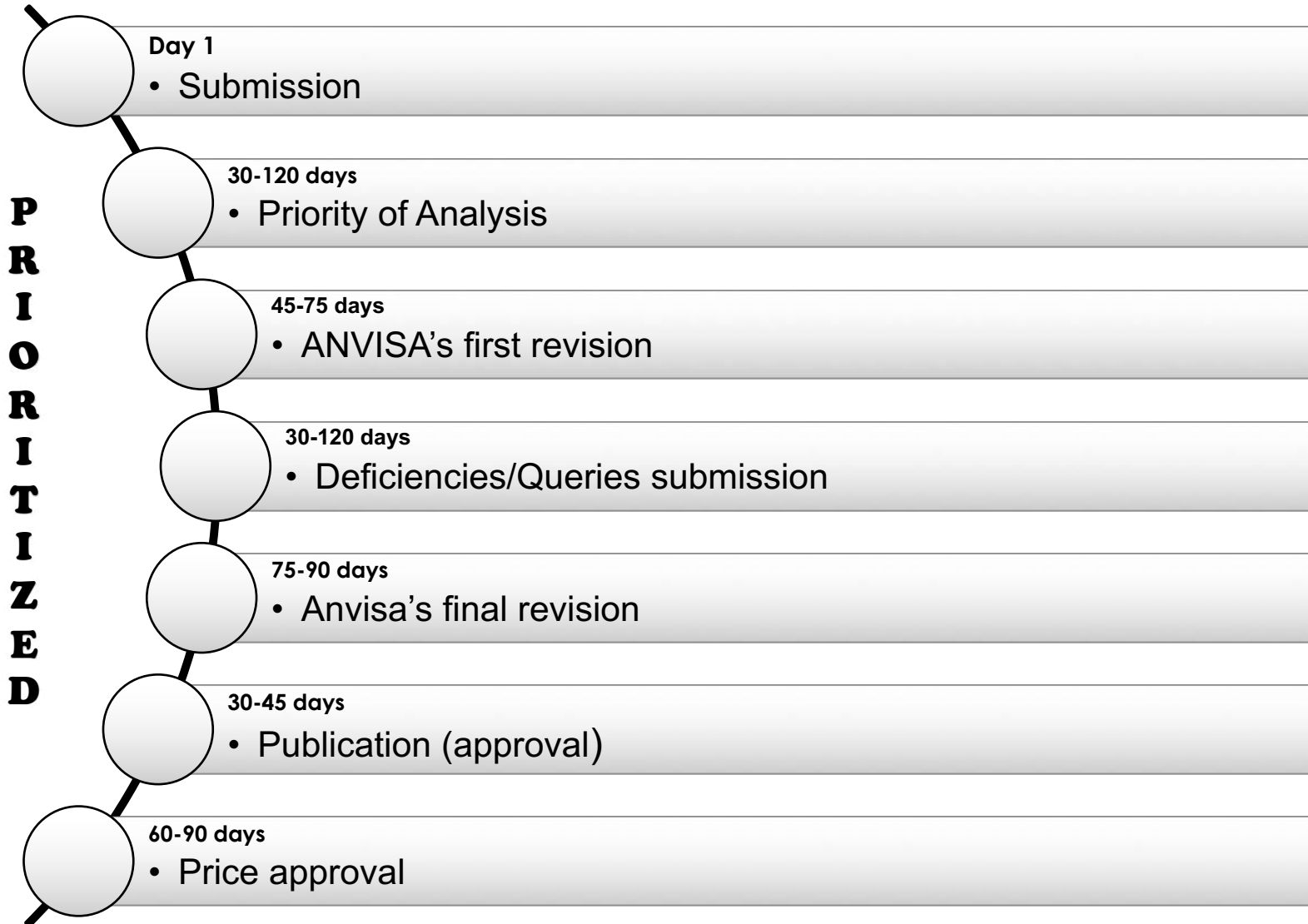
## **public consultations**







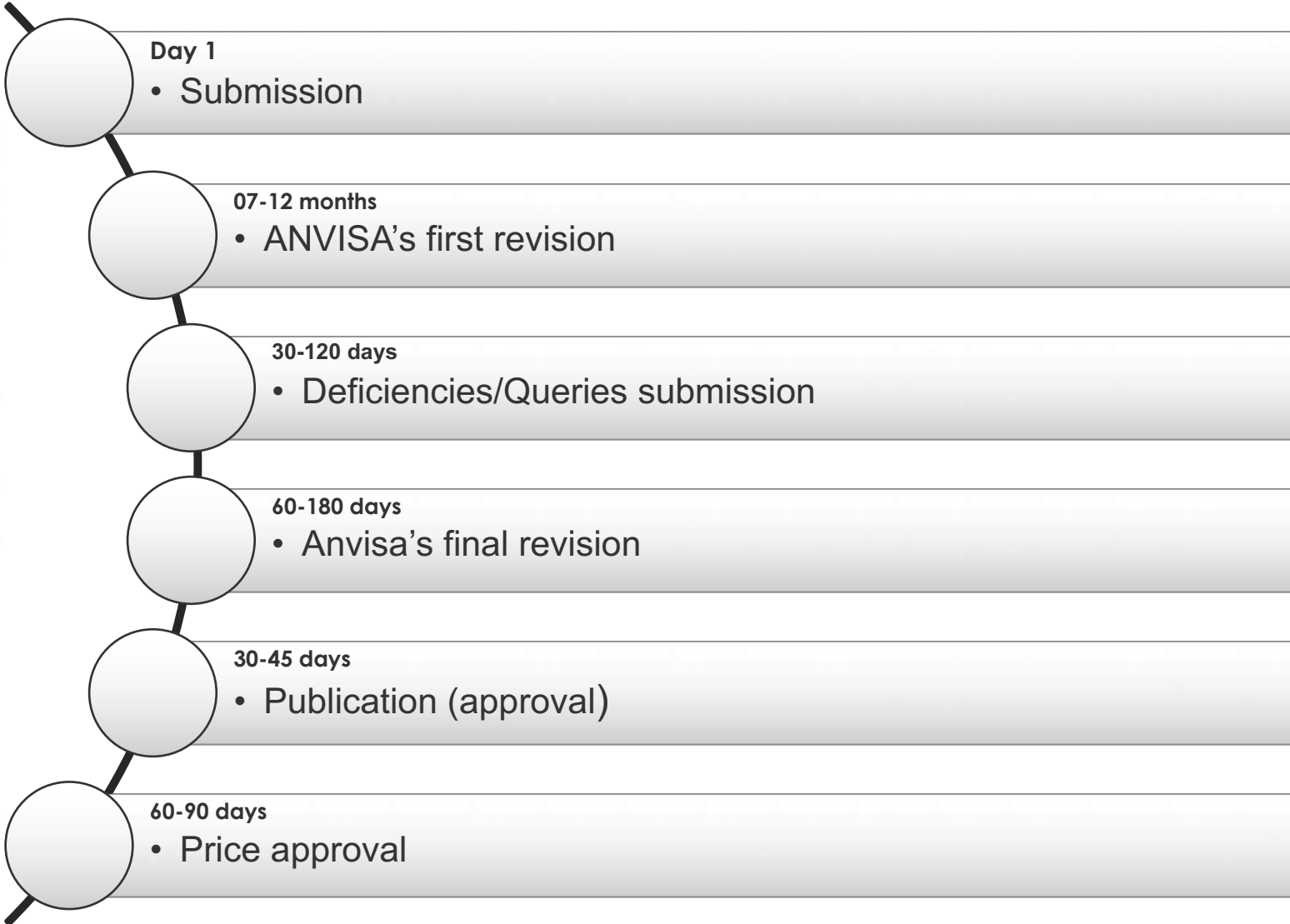
# APPROVALS



**← PRIORITIZED DRUGS: ≈09-18 months →**



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**NON-PRIORITIZED DRUGS: ≈13-27 months**