Regulation of Regenerative Medicine in Taiwan

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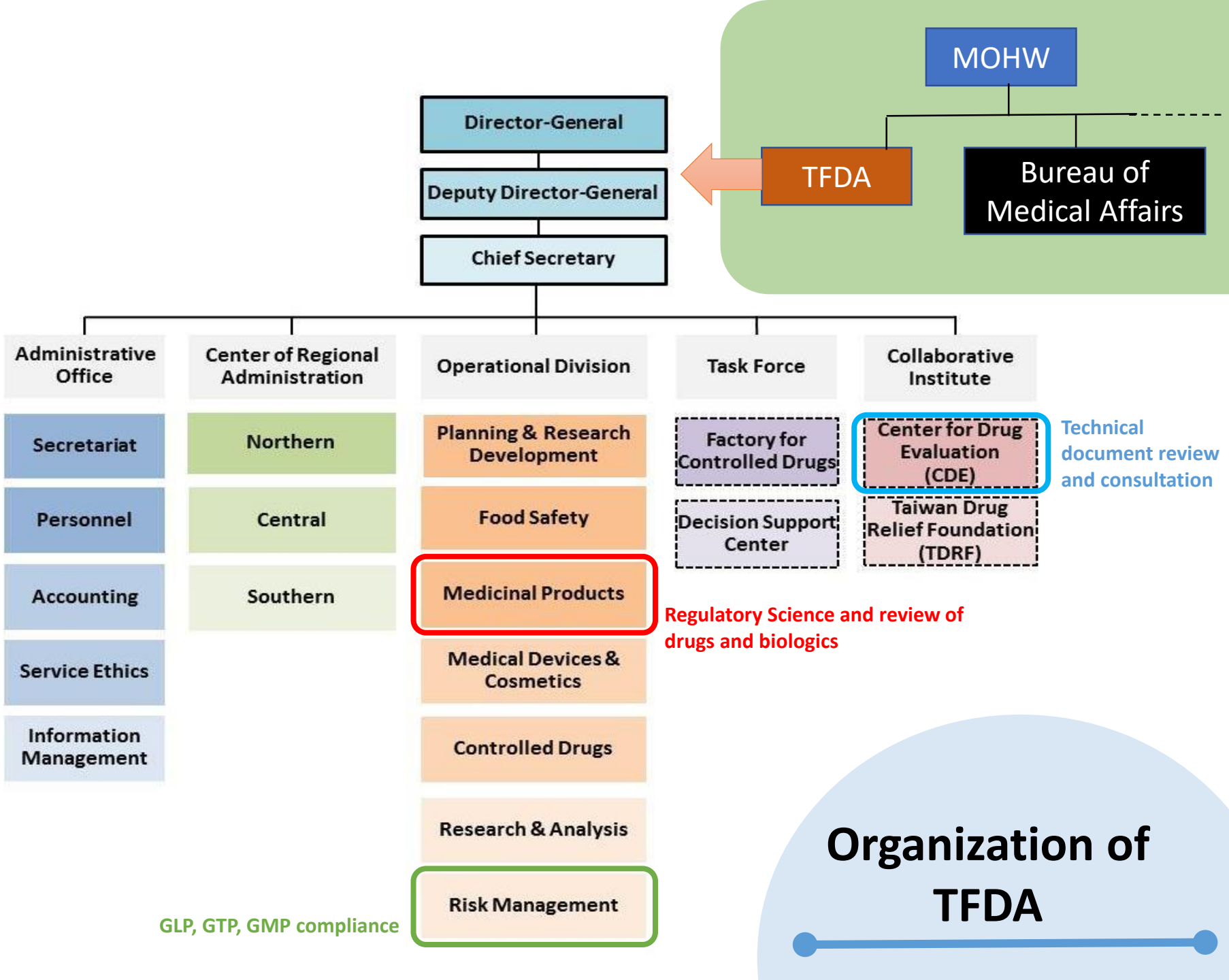
Food and Drug Administration

http://www.fda.gov.tw/

Outline

- Introduction
- Regulatory development for cell and gene therapy products
- New regulatory framework for regenerative medicine
- Future prospects


MOHW
TFDA
Bureau of Medical Affairs
Director-General
Deputy Director-General
Chief Secretary
Administrative Office
Secretariat
Personnel
Accounting
Service Ethics
Information Management
Center of Regional Administration
Northern
Central
Southern
Operational Division
Planning & Research Development
Food Safety
Medicinal Products
Medical Devices & Cosmetics
Controlled Drugs
Research & Analysis
Risk Management
Task Force
Factory for Controlled Drugs
Decision Support Center
Collaborative Institute
Center for Drug Evaluation (CDE)
Taiwan Drug Relief Foundation (TDRF)
Technical document review and consultation
Regulatory Science and review of drugs and biologics
GLP, GTP, GMP compliance
Organization of TFDA

Different regulatory approaches

Before TFDA Inauguration

Medical Practices

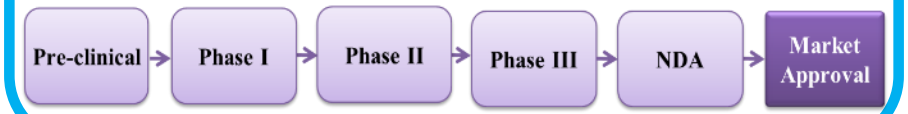
- Cell therapy was regulated as ***"New Medical Practices"*** by *Bureau of Medical Affair (BMA).*
- After human trials, "new medical practices" would have the opportunity to turn into ***"Routine Medical Practice"***.

2010

After TFDA Inauguration

Medicinal Products

- Regulation of cell therapy was transferred to *TFDA* in 2010.
- The regulatory approach was changed to ***"Medicinal Products"***.



Review for applications

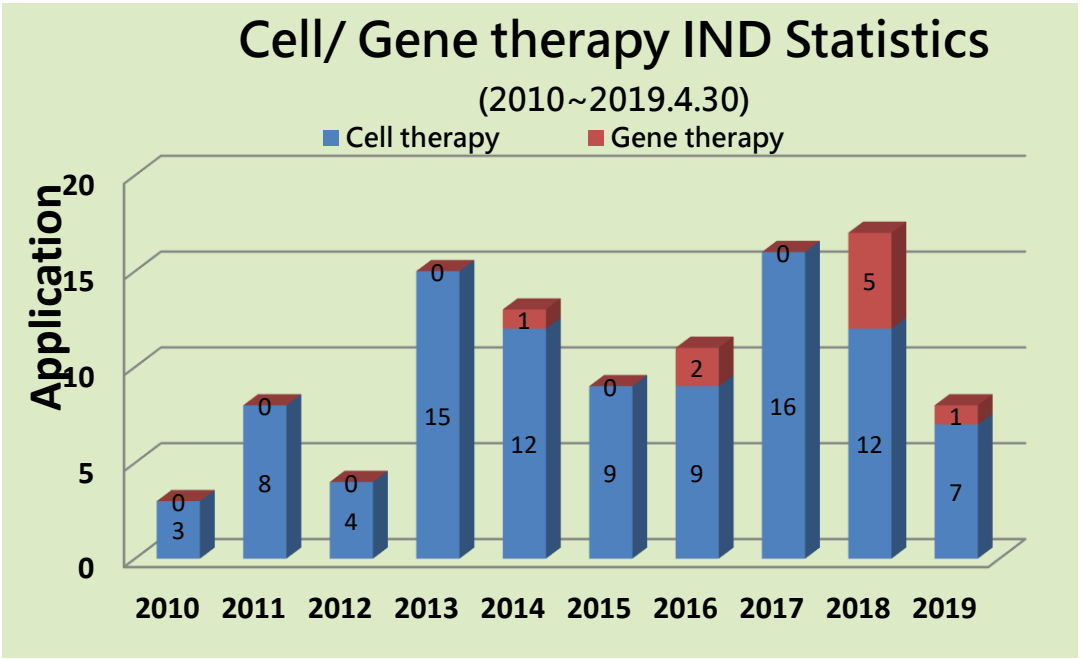
GTP Inspection

Review for applications

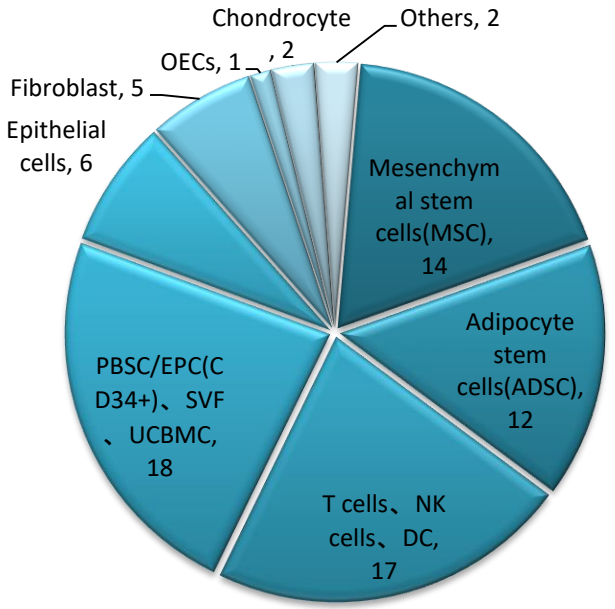
GCP, GTP Inspections

Current Status

- Currently, TFDA has not yet approved any human cell or gene therapy products on marketing, but numerous clinical studies are ongoing. The majority are from academia.



Cell types (case number)



The first and successful clinical application of cell therapy product in Taiwan

Color powder explosion at a water park in Taiwan (June 27, 2015)

Burn injured: 484
Burn surface>40%: over 200
Burn surface>80%: 24
Deceased: 15

Japanese Medical service team arrived within one week.

American Burn Association provides the consultation.

First clinical use of cell therapy product in Taiwan

JACE (autologous cultured epidermis)
ReCell (autologous cell transplantation)

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Patient voice from the Public Policy E-plateform

- E-Participation Platform for Public Policy was launched on Feb. 2015.
- It's a platform to allow people to join public policy and propose their concerned issues on it (*http://join.gov.tw*).

The first successful proposal from the E-platform (Sep.24, 2015)

- *Proposer: **Caspar Wang** (with a terminal stage of Nasopharyngeal carcinoma)*
- *Propose: To introduce **the Immune Cell Therapy Amendment Bill to the Legislation** before by the end of December 2015.*
- ***Supported by over 5000 people**.*

Proposal Accepted
Sep-24-2015

Short-term

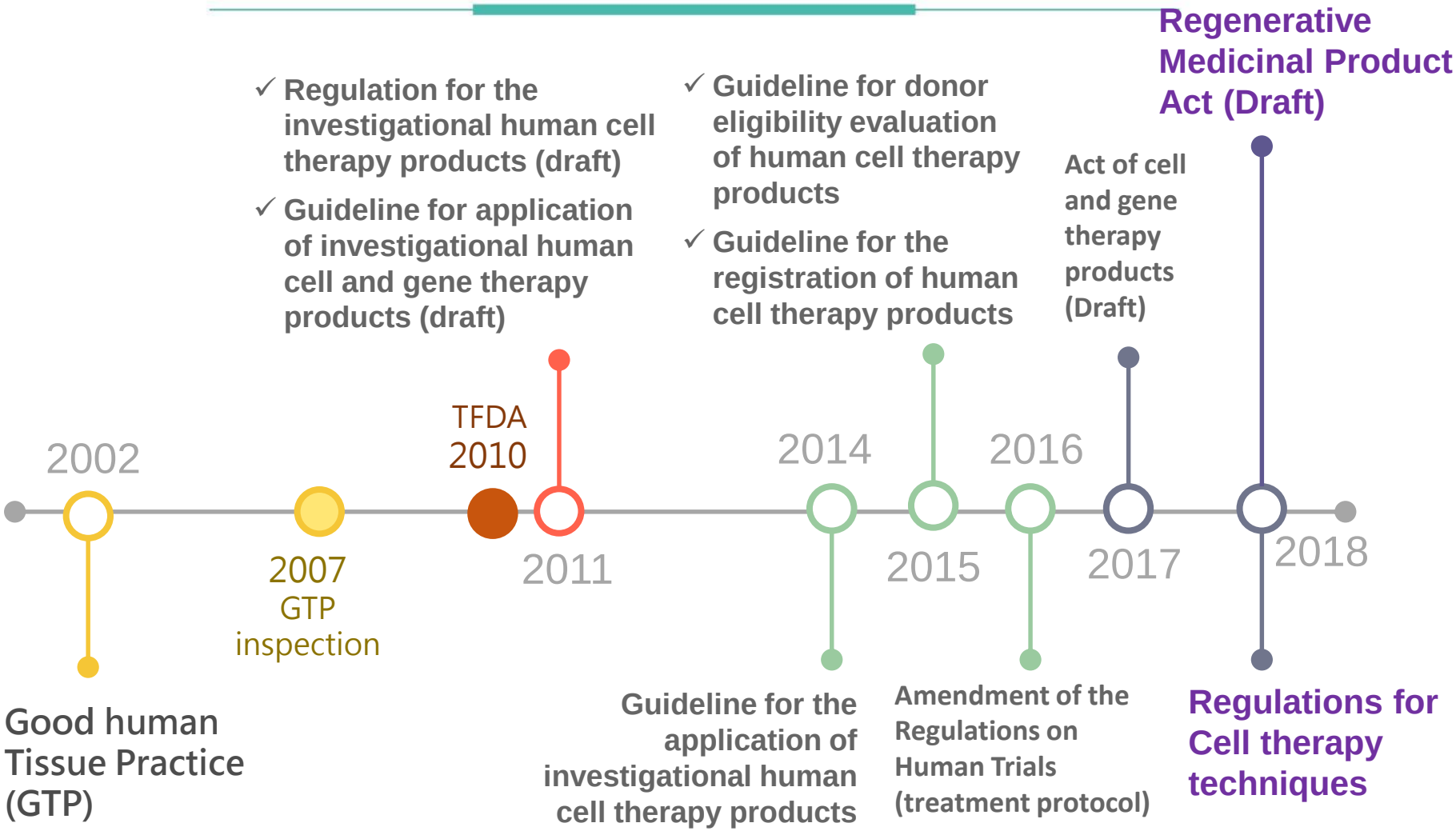
MOHW: Regenerative Medicine Development Advisory Council
Nov, 2015

Amendment of the Regulations on Human Trials (**treatment protocol**)
April-14, 2016

Mid to Long-term

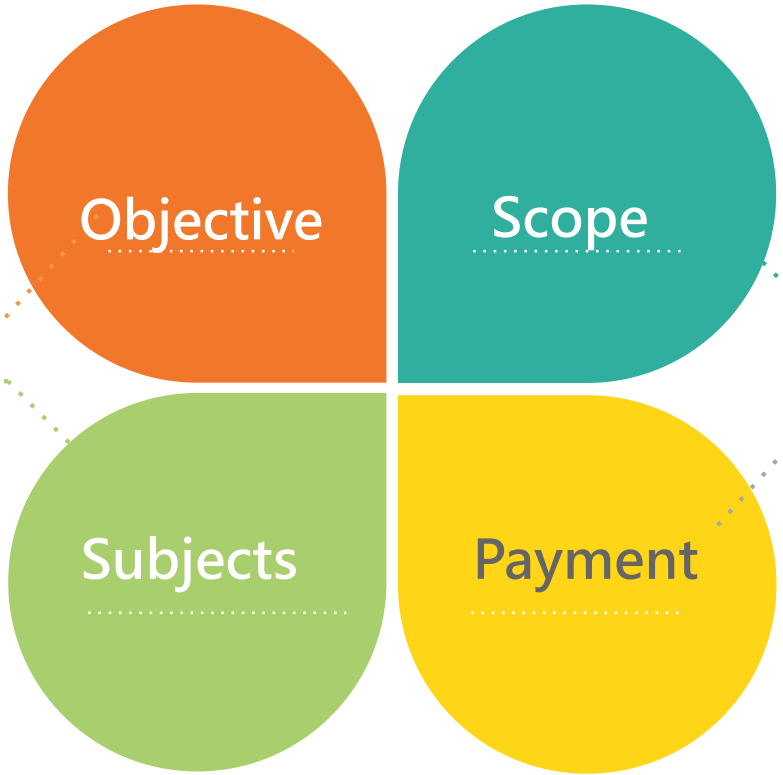
To promote a reform bill and develop cell therapy product regulations.

Regulatory development of regenerative medicine



Treatment Protocol (2015)

Amendment of the Regulations on Human Trial



- Expand access to investigational cell therapy products for treatment use

- **Serious** condition and **no alternative treatment**
- Based on the **pre-approved clinical trial protocols**
- Medical institution-initiated
- With **adequate safety data**

- For individual patients, including emergency use
- For intermediate-size patient populations

- **Patient may have to pay** for using the investigational cell therapy products for treatment

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A New Regulatory Framework (2018)

Medicinal Product v.s. Medical Techniques

Pharmaceutical Affairs Act

Regenerative Medicinal Product Act (Draft-Oct 2018, under legislative process)

Regulation Governing the Application of Specific Medical Examination Technique and Medical Device (RASMET) (Amended-Sep 2018)

Pharma	Product	Cell therapy technique	Medical institute
	Pharmaceutical Industry	Medical institute	
Manufacturing site **GMP**	GMP	GTP	Cell Processing Unit **GTP**
	Cell, Gene or Tissue engineering product w/ marketing authorization	Performed by registered physician in recognized medical institute	

Regenerative Medicinal Product Act

(Under legislative process)

General

Purpose, Scope, Definition, Authority

Registration, Changes, Extension of approval

Registration

Conditional Approval

Conditional Approval, Criteria and Requirements

Evaluation of donor eligibility, Informed consents, Manufacture and Distribution

Manufacture, Distribution

Post-Approval Management

Pharmacovigilance, Product and source traceability

Drug injury relief, Administrative injunction, Implementation date

Others

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Listed Cell Therapies in The Regulation Governing the Application of Specific Medical Examination Technique and Medical Device (RASMET)

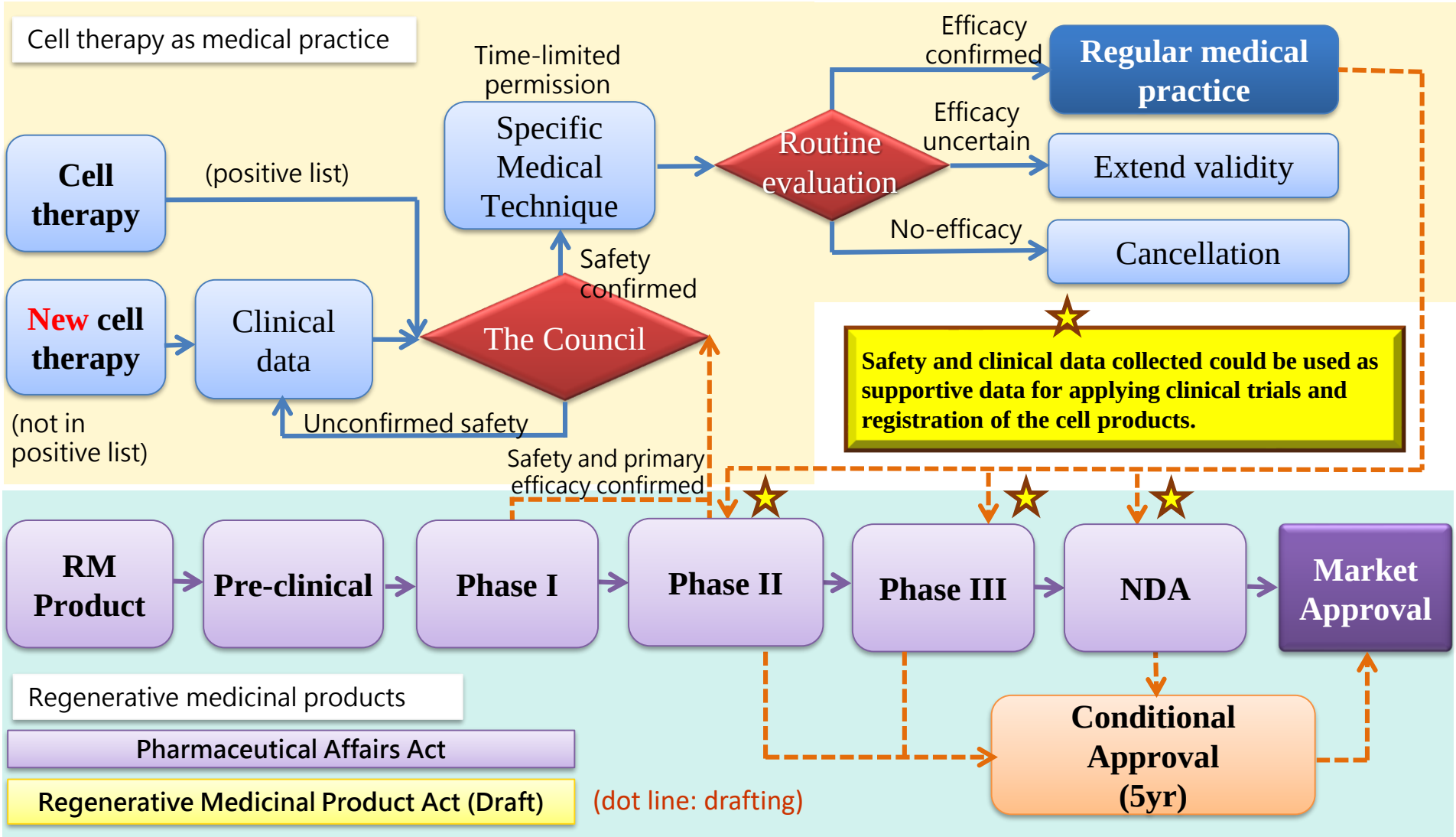
Cell Therapies	Indication

CD34+ Selected Autologous Peripheral Blood Stem Cell Transplantation	• Hematological malignancies
	  • Leukemia（Except CML chronic phase）
	  • Lymphoma
	  • Multiple myeloma
	• Chronic ischemic stroke
	• Severe lower limb ischemia

Autologous cellular immunotherapy （adoptive T cell therapy including CIK、NK、DC、DC-CIK、TIL、gamma-delta T）	• Hematologic malignancy failed standard treatment • Stage 1 -stage 3 solid tumor failed standard treatment • Stage 4 solid tumor
Autologous Adipose Tissue Stem Cell Transplantation	• Chronic or non-healing wound last for 6 months • More then 20% BSA burn or traumatic skin injury • Subcutaneous and soft tissue damage • Degenerative arthritis and knee chondral injury • Combination or adjuvant treatment with other skin minimally invasive surgery
Autologous Fibroblast Transplantation	• Skin defects: winkles, dents and scars repair • Subcutaneous and soft tissue damage • Combination or adjuvant treatment with other cutaneous minimally invasive surgery
Autologous Bone Marrow Mesenchymal Stem Cell Transplantation	• Degenerative arthritis and injured cartilage of knee • Chronic ischemic stroke • Spinal cord injury
Autologous Chondrocytes Transplantation	Injured cartilage of knee

First approved application: CIK cell therapy for hematologic malignancy (May 2019)

A new regulatory framework for regenerative medicinal products and medical practice



Summary

- Advantage of the new regulatory framework
  - Service for unmet medical needs
  - Accelerate the development of regenerative medicine in Taiwan

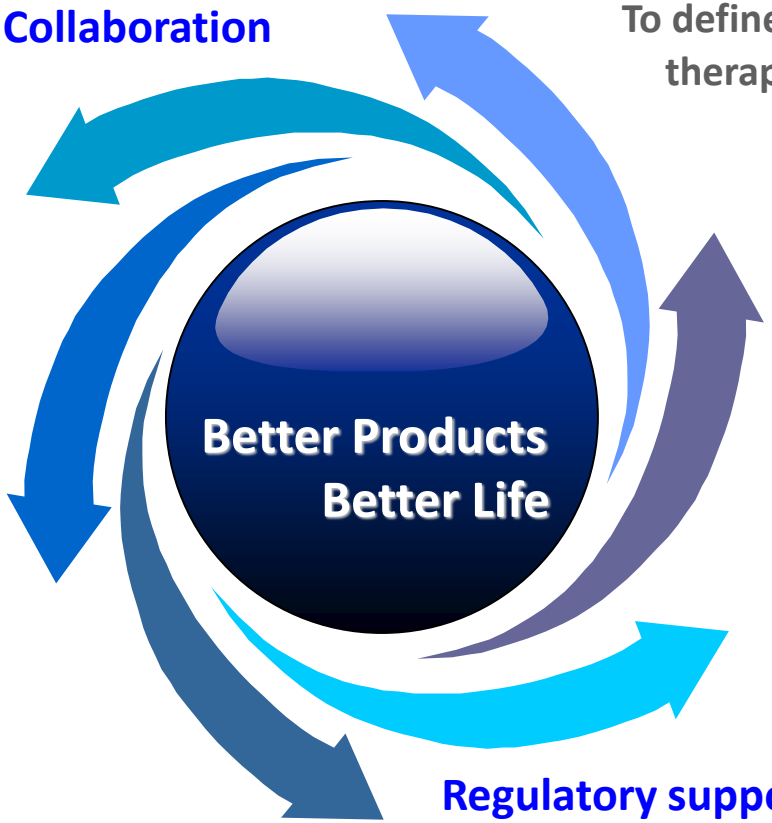
- Challenges
  - Evaluation of clinical outcome (risk-benefit)
  - Linkage between products and practices
  - Pricing (Value-based pricing)
  - Approve of the first regenerative medicinal product in Taiwan.

Future Prospects

To enact "Act of Regenerative Medicinal Products"

To define and better regulate the cell therapy and gene therapy products

To Enhance International Collaboration



To Establish Training Programs and Scientific Workshop

GTP, GMP, and Specificity of cell production process, animal model, clinical trial design

To continue establishing specific guidance

Registration requirements, Traceability, GMP for regenerative medicinal products, etc.

To Improve Consultation Mechanism

Regulatory support and accelerate development of cell therapy products

Incentives for small and medium sized enterprises

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Thank you for your attention!

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