SEND for Pathologists and Toxicologist

“Current issues of SEND Data Conversion from Toxicologic Pathology Point of View”

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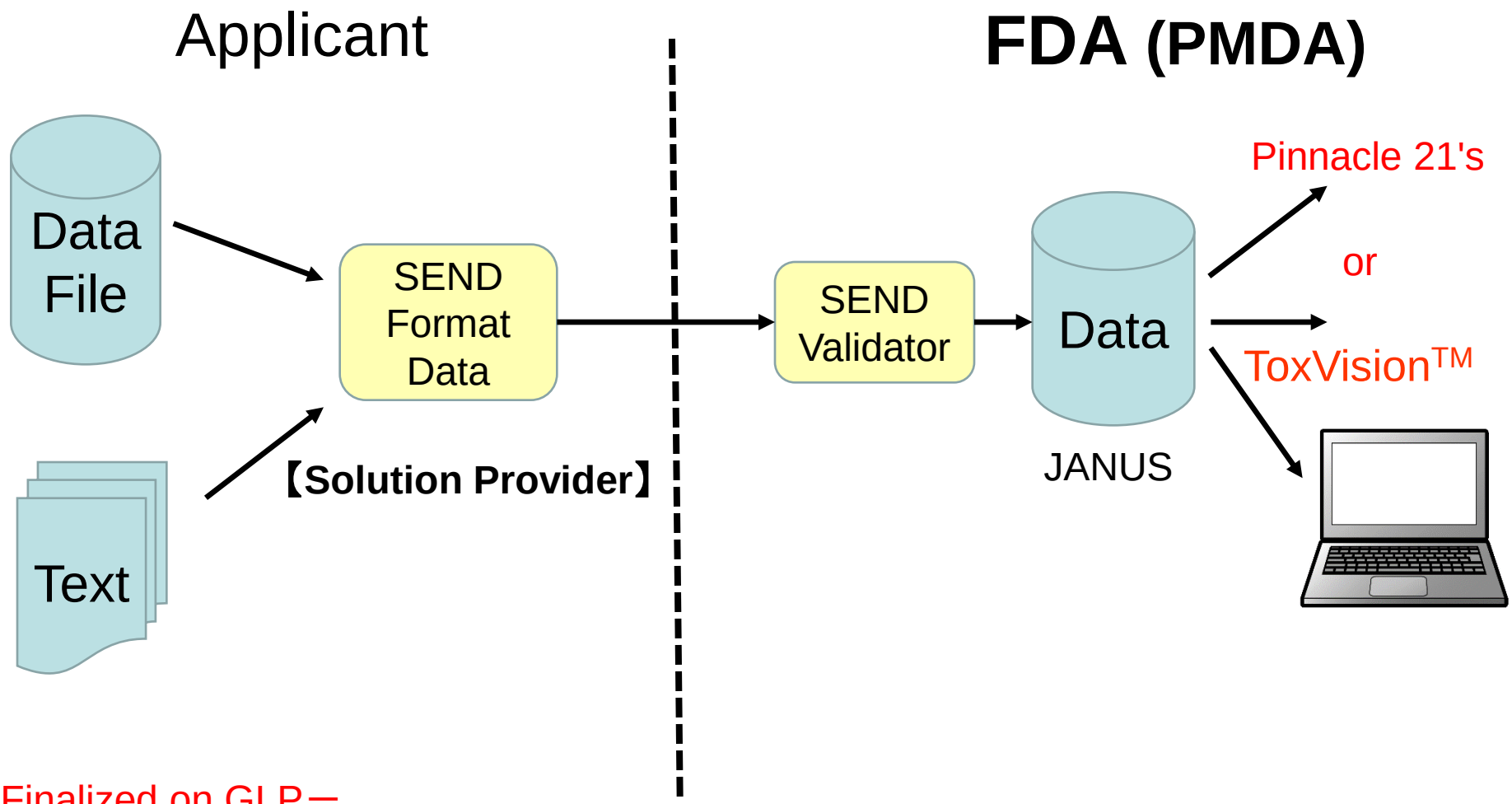
LunaPath LLC.

Agenda

1. Preparation of the SEND Data Conversion
2. Global Standard of the Terminology in Toxicologic Pathology
3. Globalization of Findings in Data of Toxicologic Pathology
4. Pathology Peer Review for Standardization of Toxicologic Pathology Data
5. Summary

Overview of the SEND Data submission :



－Finalized on GLP－

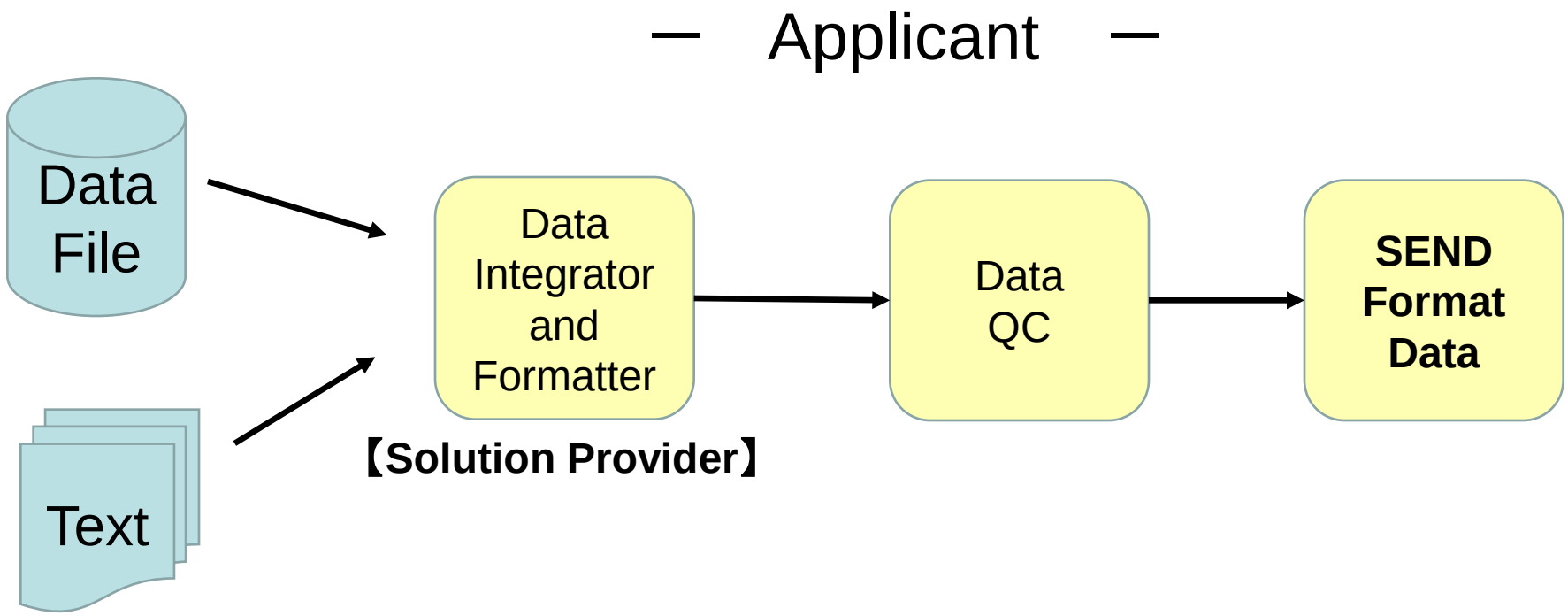
CDISC Registered Solutions Providers :

For Standard for Exchange of Nonclinical Data (SEND)

Provider （**2016, June**）	(Office)

- Business & Decision Life Sciences (Belgium / France / Switzerland / USA)
- Data Standards Decisions Aps (Denmark)
- Formedix (USA / UK)
- Instem LSS (USA/UK/Japan)
- PDS Life Sciences (Switzerland / USA / Japan)
- Point Cross Life Sciences (USA / France / India)
- S-Cubed (Denmark / UK)
- Xybion Corporation (USA / India / Germany / Canada)

Preparation of the SEND Data Conversion:



－Finalized on GLP－

Domain of the SEND：

	Dataset	Description
Interventions	EX	Exposure
Findings	BW	Body Weights
	CP	Clinical Pathology
	CS	Clinical Signs, PE, and Ophth
	DL	Disposition
	DS	Drug/Metabolite Levels
	EG	ECG
	FW	Food and Water Consumption
	GC	Group Characteristics
	MA	Macroscopic Findings
	MI	Microscopic Findings
	OW	Organ Weights
	SC	Subject Characteristics
	SS	Study Design Summary
	VS	Vital Signs
Special purpose	CO	Comment

Sample : SEND Domain

The quantitative data (numerical value)

OW（Organ Weight）

STUDYID	USUBJID	DOMAIN	OWTESTCD	OWTEST	OWCAT	OWORRES	OWORRESU	OWLOC
840415	401	OW	ADRENALS	Adrenals	ORGWT	43	mg	Both
840415	401	OW	BRAIN	Brain	ORGWT	1.9461	gm	
840415	401	OW	BRAIN	Brain	ORGBODWT	0.005576		

Sample : SEND Domain

The qualitative data (observation findings)

MI：Microscopic Findings

【for example】

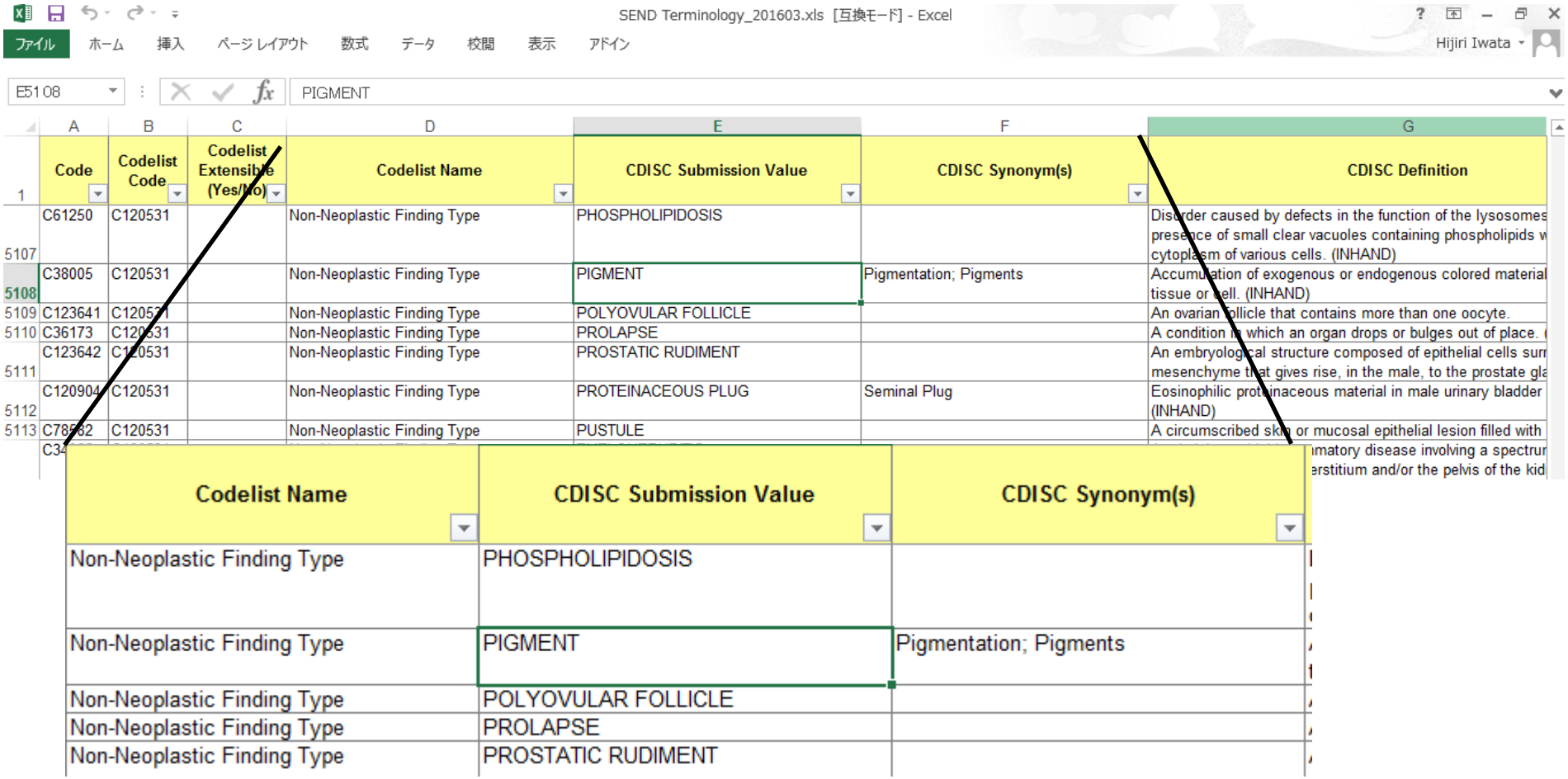
Cell infiltration, inflammatory cell, in pelvis, bilateral, Grade 1

MIORRES	*MISTRESC*	*MIRESCAT*	*MISPEC*
Cell infiltration, inflammatory cell, in pelvis, bilateral, Grade 1	Cell infiltration, inflammatory	NON-NEOPLASTIC	KIDNEY

MILAT	*MISEV*	*QNAM*	*QLABEL*	*QVAL*
BILATERAL	MINIMUM	MIRESMOD	Result Modifiers	in pelvis

Mapping of pathology term ：

CDISC Controlled Terminology

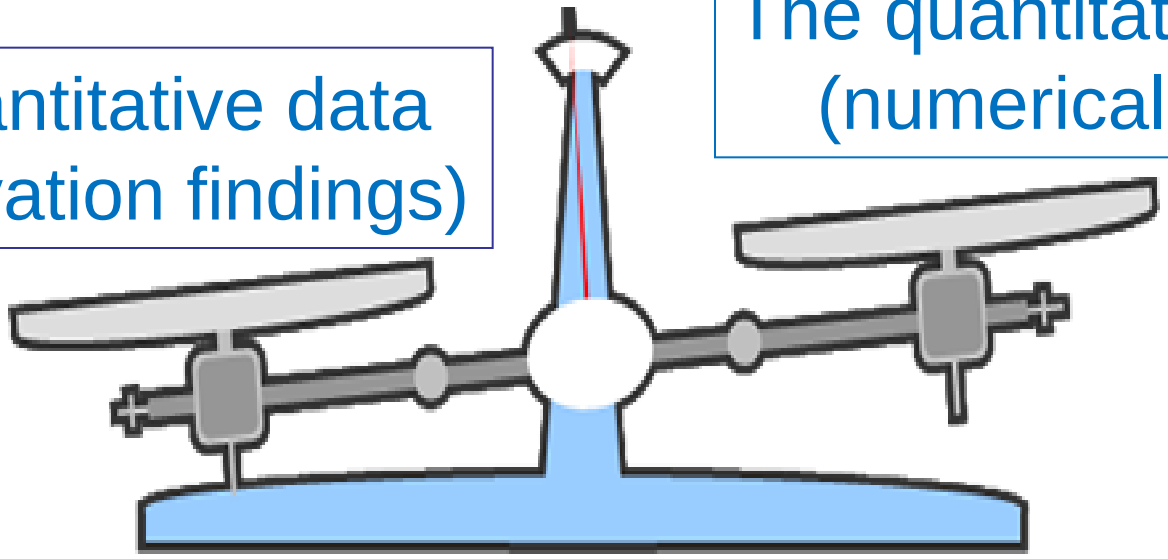


＊Control of the pathological term should be according to the CDISC Controlled Terminology

Difficulty of SEND Data creation:

The quantitative data (observation findings)

The quantitative data (numerical value)



QC of the SEND Data:

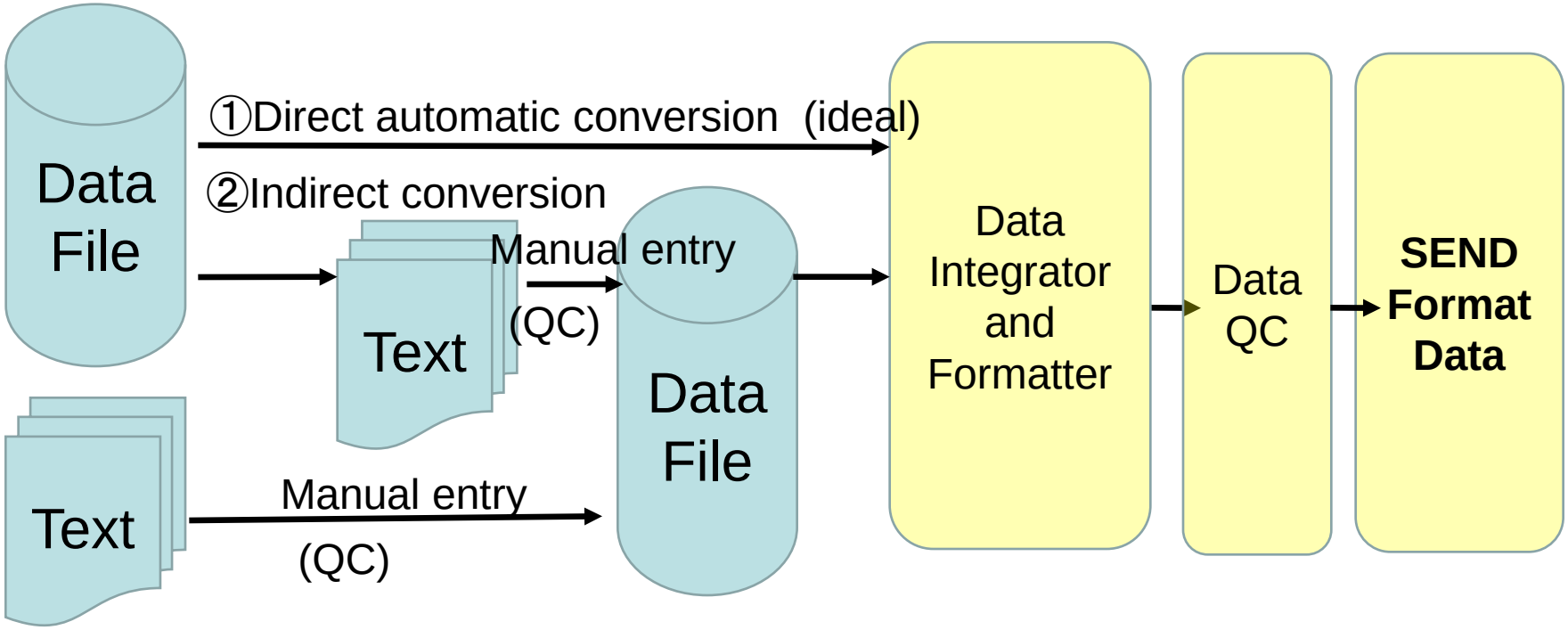
＊Clarify the responsibilities of the data QC !

Who?

1. Data conversion Person
2. Applicant
   - ・Sponsor
3. Study Author
   - ・Study Director
   - ・Study Pathologist
   - ・Study Person in charge

＊To QC of SEND conversion data, software（SEND　Viewer）to deploy is necessary !

The need of direct automatic conversion for SEND Data :



－Finalized on GLP－

1. Preparation of the SEND Data Conversion －Brief Summary－

【Task】

Data QC work is required for the conversion SEND data. More attention is required for qualitative data (observation findings) compared with quantitative data (numerical value).

【Solution】

①It is important to clarify the responsibility of the data QC.

②To reduce this QC work , cooperative structure with solution provider and automatic conversion directly by standardized input data are required.

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1. Preparation of the SEND Data Conversion
2. Global Standard of the Terminology in Toxicologic Pathology
3. Globalization of Findings in Data of Toxicologic Pathology
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Global Standard Terminology in Toxicologic Pathology:

What is INHAND？:

International Harmonization of Nomenclature and Diagnostic Criteria (INHAND)

- Society of ToxicologicPathology (STP)
- European Society of Toxicologic Pathology(ESTP)
- British Society of Toxicologic Pathology (BSTP)
- Japanese Society of Toxicologic Pathology (JSTP)

A Global Editorial Steering Committee (GESC)

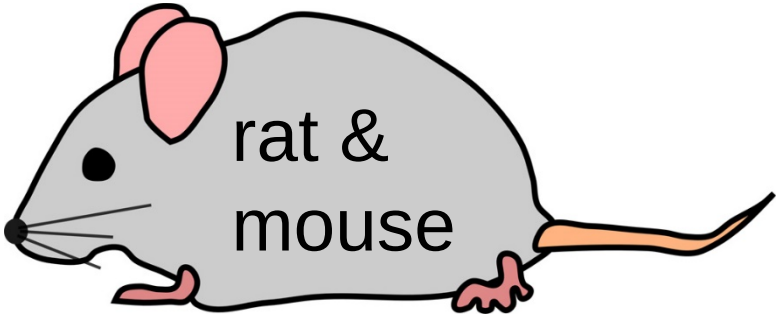
⇩

Working groups 2006～

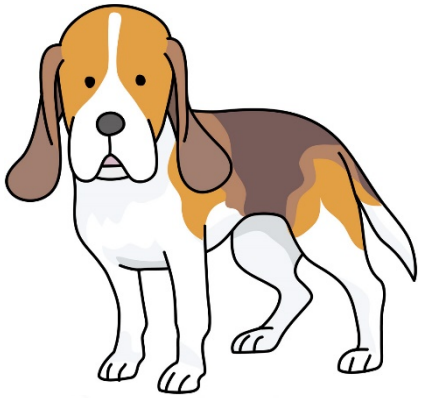
The published INHAND terms:

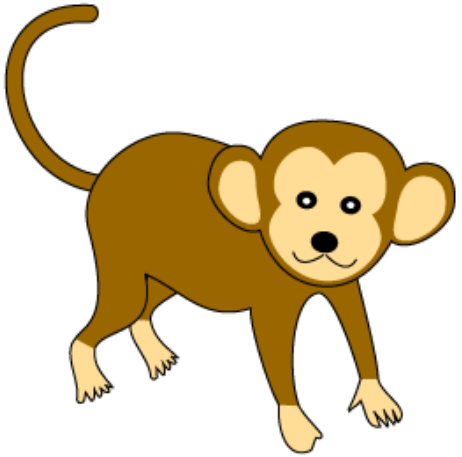
2016, June

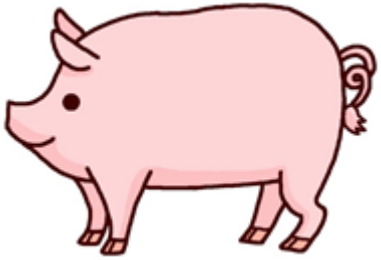
78%:



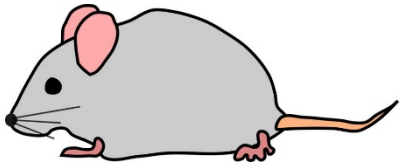
Not Yet:







The published INHAND terms：



Organs described in the guidelines ：

Adrenal gland	Jejunum	Rectum	Urethra
Aorta	Kidney	Salivary gland	Urinary bladder
Bone marrow	Lacrimal gland (exorbital)	Seminal vesicle	Uterus (including cervix)
Brain	Liver	Skeletal muscle	Vagina
Cecum	Lung	Skin	
Coagulating gland	Lymph nodes	Spinal cord	
Colon	Mammary gland	Spleen	
Duodenum	Skeletal muscle	Sternum	
Epididymis	Esophagus	Stomach	
Eye	Ovary	Testis	
Femur with joint	Pancreas	Thymus	
Gall bladder	Parathyroid gland	Thyroid gland	
Harderian gland	Peripheral nerve	Tongue	
Heart	Pituitary	Trachea	
Ileum	Prostate	Ureter	

Organs published as INHAND term

39／50 organs_2016, August

The difference of INHAND terms by organ：

Pigmentation

Liver	Pigmentation (Pigment Deposition)
Kidney	Accumulation, Pigment
Testis, Digestiv.Or	Pigment
Mammary Gland	Pigment: Lobule
Lung	Pigments, Dusts, Inert Materials
Ovary	Pigment (N) Ovary
Uterus	Pigment (N) Uterus

Histiocytic sarcoma

Liver	Histiocytic Sarcoma
Uterus	Sarcoma, histiocytic
Epididymis	Sarcoma, Histiocytic

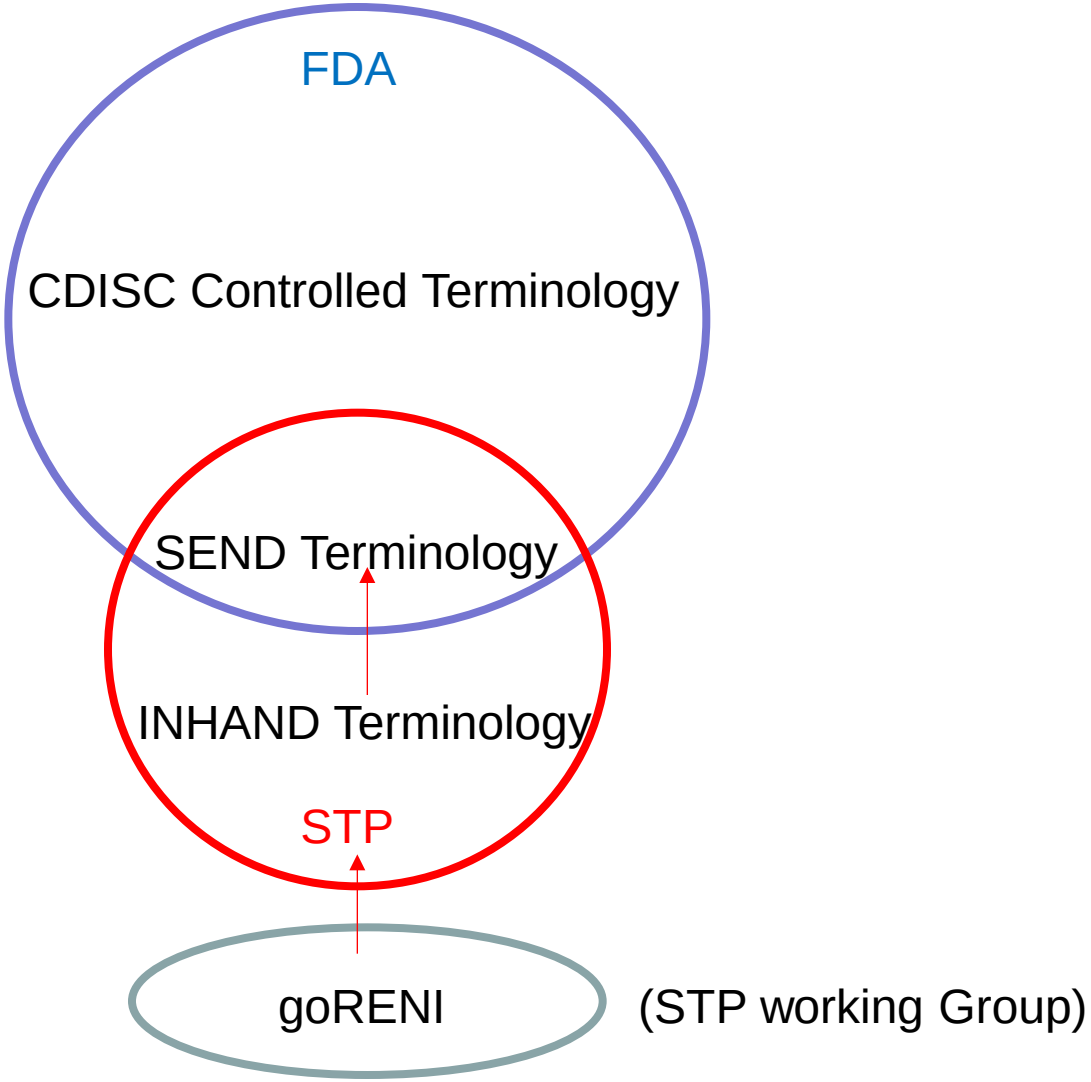
Severity

CDISC Controlled Terminology

(General)			(Liver)	
Score			Score	
0	Normal		0	Normal
1	Minimal		1	Minimal
2	Slight		2	Slight
3	Moderate		3	Moderate
4	Severe		4	Marked
			5	Severe

(Mild)

CDISC Controlled Terminology and INHAND



2. Global Standard Terminology in Toxicologic Pathology.

－Brief Summary－

【Task】

SEND terminology in CDISC Controlled Terminology（2016, June：Neoplastic 296 terms　Non-neoplastic 136 terms）has been quoted from INHAND(2016, August:Total 1247 terms）.
The term is still insufficient and INHAND itself still need to add and modify.

【Solution】

①Pathologist should be attention to update of INHAND and CDISC Controlled terminology and use the INHAND and goRENI term for daily data entry.

＊：There was not global standard terminology for clinical observations and macroscopic findings.

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Differences in the arrangement of the pathological findings

Ⅰ: Organ: Subject－Site Type

Liver: Pigment, Kuffer Cell
（Organ） （Subject） (Site）

Ⅱ: Organ: Site－Subject Type

Liver: Hepatocyte, Hypertrophy
（Organ） (Site） （Subject）

Ⅲ: Organ－Site: Subject Type

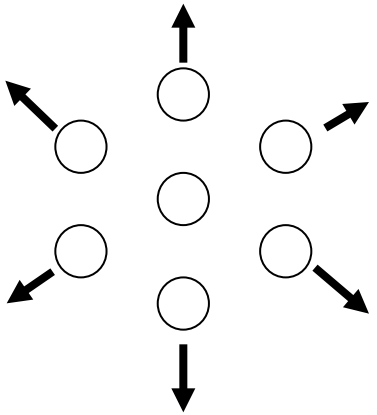
Nose – Respiratory Epithelium: Hyperplasia
（Organ） (Site） （Subject）

Difference of counting in the total tumor number

Two types of malignant tumor

1. **Systemic Tumor (Multiple site)**

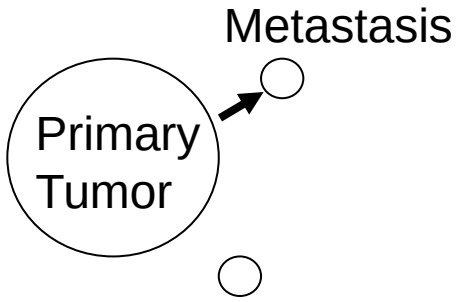
- Malignant lymphoma
- Leukemia
- Mast cell tumor (malignant mastocytosis type)
- Histiocytic sarcoma (malignant histiocytosis type)
- Myeloma
- Other



(How many tumor ? 1 or 7?)

2. **Solitary pattern and metastasis**

- Sarcoma
- Carcinoma
- Malignant lymphoma
  (Solitary type, Thymic lymphoma, etc…)
- Mast cell tumor (Mast cell sarcoma type)
- Histiocytic sarcoma (Solitary type)
- Plasma cell tumor
- Other



(Number of Tumor=1)

3. Globalization of Findings in Data of Toxicologic Pathology.

－Brief Summary－

【Task】

There are differences in the arrangement of the pathological findings by test facility, pathology system and test results.

【Solution】

① Standardization of the arrangement of the pathological findings will help the SEND data automatic conversion and make the QC work easy.

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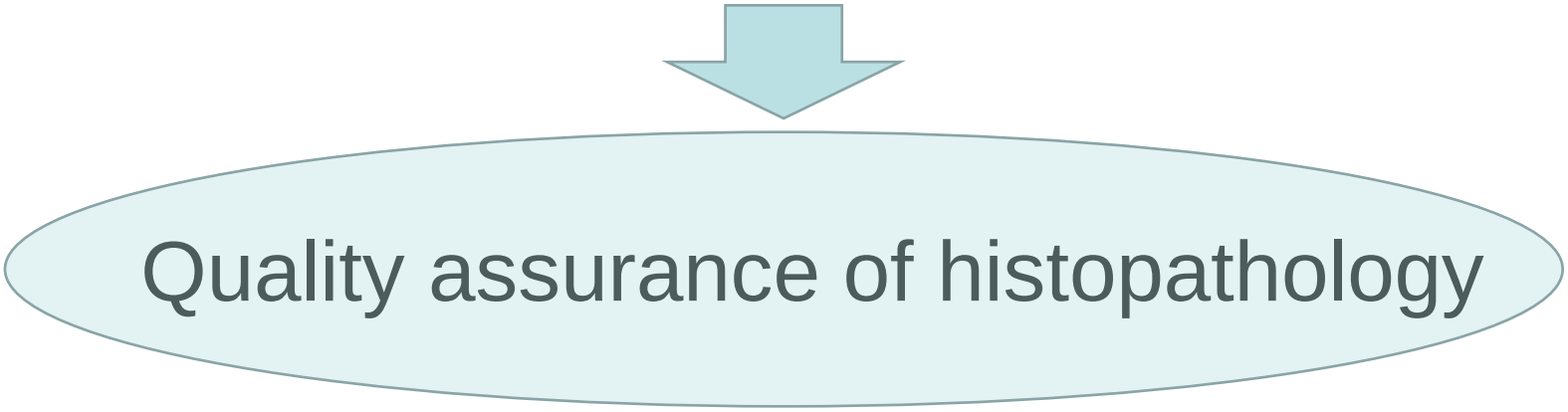
Pathology peer review required for standardization：



Confirmation of the findings by the second pathologist

- Are there any findings forget to input？
- Are there any findings of over diagnosis ？
- Appropriate findings on the toxicity assessment ？

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― Summary ―

① It is important to clarify the responsibility of the data QC.
② To reduce this QC work , cooperative structure with solution provider and automatic conversion directly by standardized input data are required.
③ Pathologists should be attention to update of INHAND and CDISC Controlled terminology and use the INHAND and goRENI term for daily data entry.
④ Standardization of the arrangement of the pathological findings will help the SEND data automatic conversion and make the QC work easy.
⑤ Pathology peer review required for standardization