

Virtual slides in electronic publication:

Experiences with the open access peer reviewed journal www.diagnosticpathology.eu



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Dietmar, Kayser Gian

Background and aims

Definition

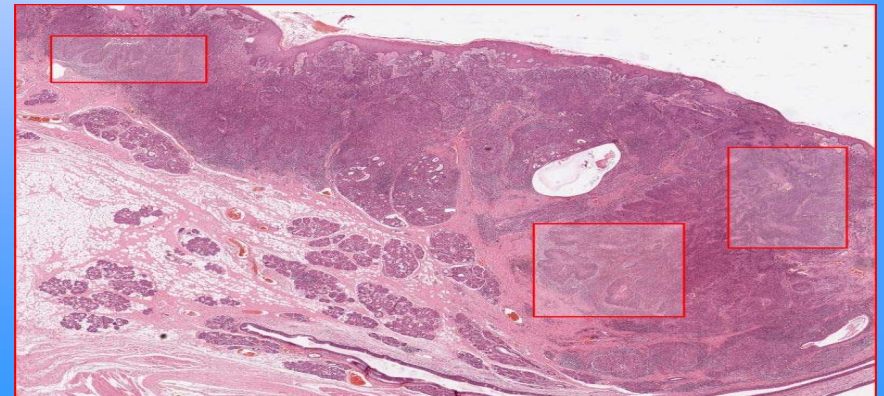
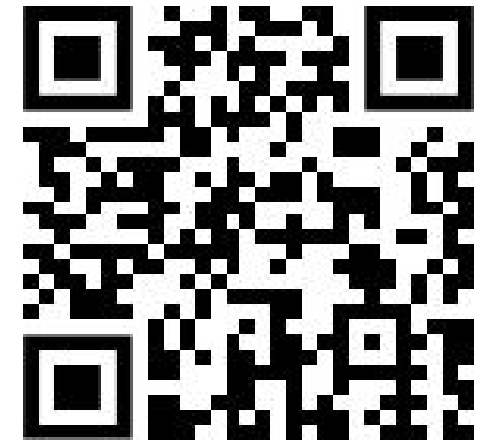
History

Features

Electronic information distribution

Experiences

Perspectives



Background and goals

- **Communication is an essential function in real life.**
 - **It is bound to distances in space and time.**
 - **It includes learning, education, training, teaching, ethics, research, diagnosis, treatment, knowledge acquisition and distribution.**
 - **It is applied at direct contact or at a distance (virtual).**
 - **Virtual environment annuls spatial and time relation and direction (2D, reversible time).***
 - **Thus, a virtual network might contemporary serve for and combine different communication modes.**
- *) Eternal life, multiple truths, fake news, predatory journals, different business models.**

Definitions

- **Open Source Program (Journal):** Open, free accessible software which addresses specific aims (statistics, journals,...).
- **Open Access Journal:** Access free electronically worldwide distributed journal.
- **Peer reviewed journal:** Article quality control by independent experts.
- **Virtual slide (VS) :** Completely digitized glass slide
- **Virtual microscopy (VM):** Diagnostic work on VS.
- **Directory of Open Access Journals (DOAJ):** provides access to high quality, open access, peer-reviewed journals.
- **Predatory journal:** disregards ethical standards and distributes faked information.

Short description of the Electronic Journal of Pathology and Histology

- **March 1, 1995, founded Volume 1.1**
- **Distributed on a Floppy, prints on demand**
- **DOS system software**
- **Specific editor (.txt format)**
- **Images in .pcx format**
- **Executable programs (< 30kb)**
- **January 1, 1 2000 transferred to html, CD**
- **July 1, 2001 last issue**
- **Price 125 US\$, developing countries 50 US\$**

EJP Advantages - Constraints

- **Advantages**

- Cheap
- Digital world (search, retrieval, communication (links to Pubmed, Euroquant, executable programs, interactive publication, trials of automated reviews (PARIS, pathology automated review information system)).

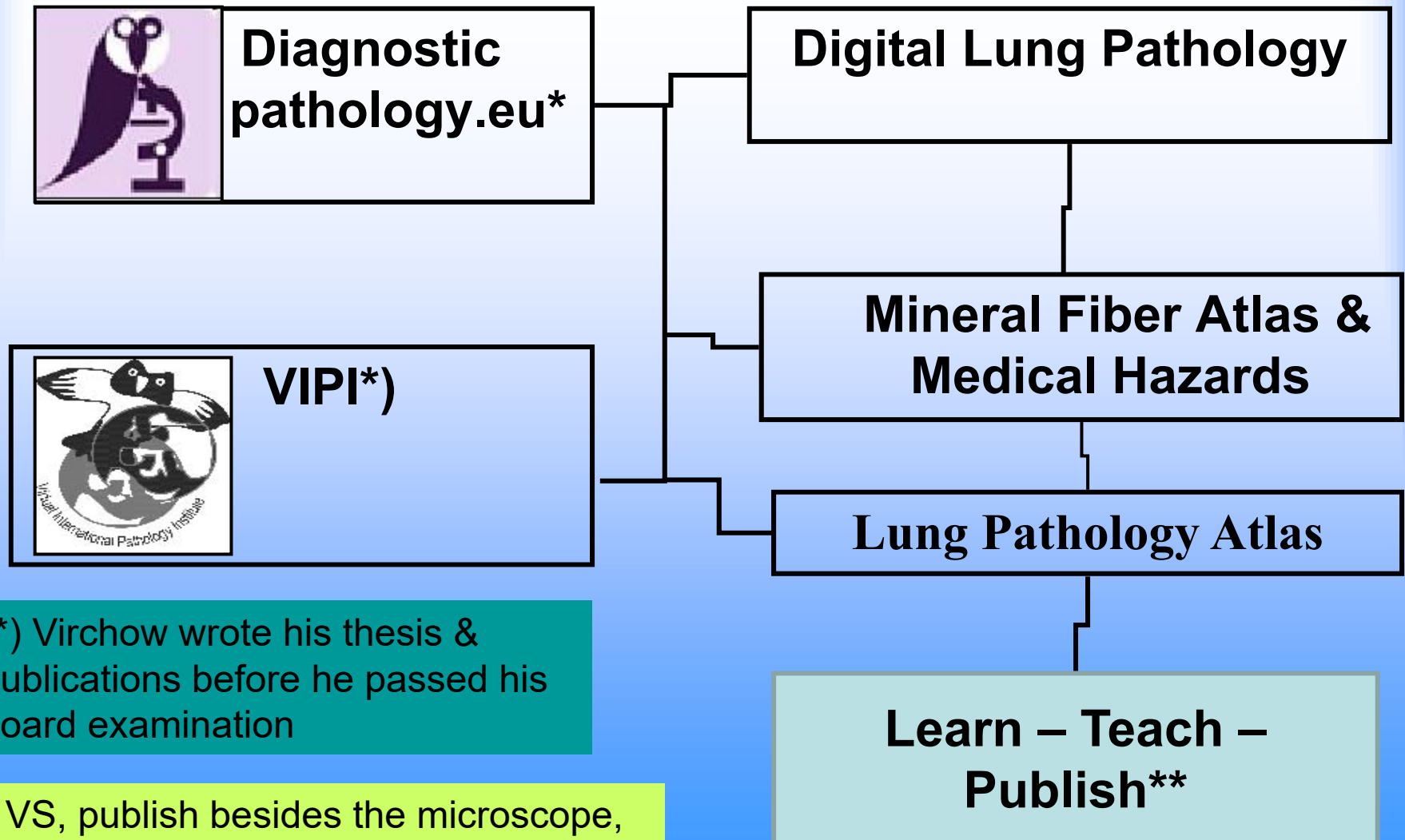
- **Constraints**

- Conventional distribution (surface mail)
- Small publisher (no advertisement)
- Customers mainly from developing countries
- Missing Citation Index (electronic publication /citation) not accepted by pubmed at that time!



Information Network

www.diagnosticpathology.eu – www.diagnomx.eu/vipi



****)** Virchow wrote his thesis & publications before he passed his board examination

***)** VS, publish besides the microscope, readers measure, define references,...

Fine granulate – Mineral Fiber Atlas



the diagnostic pathology journal DIAGNOSTIC PATHOLOGY



The official
Journal of the
European
Society of
Digital &
Integrative
Pathology

Scientific Directors

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Berlin

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Paris

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the diagnostic pathology journal DIAGNOSTIC PATHOLOGY

Diagnosticpathology Mineral Fibers - Fine Particulate

Foreword Intro - Explanation Fine Particulate

Mineral Fibers Home

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Virtual_slides_in_your_articl



Scholar Atlas

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Virtual slide atlas
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Digital Lung atlas
Mineral fibers atlas

Articles

Submitted Published

digital lung pathology - Google Chrome

www.diagnomx.eu/dl/html/main.html


back forward Home Refresh WWW e-training / back to Recommended Web Pages just select... STOP Exit

digital lung pathology

klaus kayser
alexander oehmann

ISBN - 3-936881-05-7
Rendevous Verlag Baden-Baden 2003

[start](#)



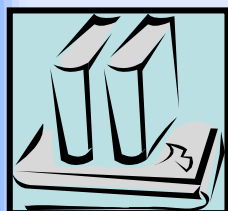


Basic functions of VIPI

www.diagnomx.eu/vipi

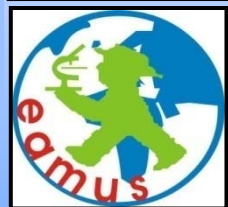


Client

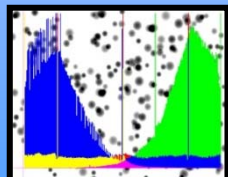


External Information

**Language Translation
Access Library NIH**



**Measurements
Diagnosis Assistants**



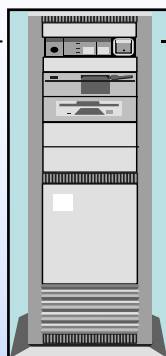
Quality Control

Confirmed Report (pdf)

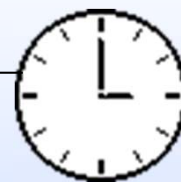


**Teaching Tools,
Tests**

Upload image



Email, SMS; phone



Experts on duty



**Relational
Database**

Client Expert Communication

Off line: email, SMS, Facebook, Twitter

**On line: Skype, Chat,
Videoconferencing**

Publication (diagnosticpathology.eu)

VIPI (www.diagnomx.eu/vipi)

Addresses:

- **Reliable and controlled duties of members**
- **Accurate and save data transfer**
- **Automated notification of clients and experts**
- **Assistance in language problems**
- **Mobile access and use (iPAD, iPhone, etc.)**
- **Automated search for related literature**
- **Liabile diagnosis on demand**
- **Virtual slides & automated measurements**
- **Creation of individual client's data banks**

Medical Communication Forum

Justiciable Diagnosis Report

Stephan Borkenfeld
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58099 Hagen

DiagnomX GmbH
Buecherstr. 50 e
45731 Waltrop
Tel.: +49-151 52493917
eMail:info@diagnomx.eu

MECES Image Expert Consultation Report

MECES-ID.: 13_56

Name: بان

Sex: انثى

Date of Birth 18/02/1964

Identification Nr.: Re: 55/12 الرحم عنق

Given Name: وردة

Age 48

Date of Examination: 3.4.2012

Preliminary Diagnosis: التهاب عنق الرحم

Expert Diagnosis: cervical polyp, chronic cervicitis

Microscopic Findings

Существует аденоматозные изменения эндо-шейки слизистой оболочки с волокнистой стромы и увеличение желез в соответствии с шейки матки полип. Кроме того, некоторые умеренные distrubed шейки musoca с богатыми гликогеном клеток плоского эпителия и мягкой - умеренной дисплазии. Результаты с подозрением на вирусную инфекцию. Нет показаний к злокачественности.

There is an adenomatous alteration of the endo-cervical mucosa with fibrous stroma and enlarged glands consistent with a cervix polyp. In addition, some moderate distrubed cervical musoca with glycogen rich squamous cells and mild - moderate dysplasia. The findings are suspicious for virus infection. No indication for malignancy.

Date: 05.06.2012

*) Disclaimer: This report is done to the best of the reviewers knowledge. The responsibility of final or any reported diagnosis still remains in the hands of the requesting pathologist. Therefore, the reviewer cannot be claimed for and will not accept any liability, whatever it is.

Principal considerations on innovative electronic scientific journals

Authors' interest in scientific publication: Fast, worldwide distribution of own research (reputation, funding, professional benefit,...)

Community interest: Social benefit (patient treatment, education, infrastructure,...); commercial benefit (industry)

International interest: joint projects, cost reduction

Passive information distribution (TV, radio, paper prints) Author <> Sender; Viewer, Reader <> passive receiver.

Active information distribution: fixed release of information, immediate reaction of receiver (without influence on kind and release of information)

Inter-active information distribution: flexible release of information, modulated by the receiver (individual details, interpretation, proof of truth)

Properties of a future open access journal: Will provide inter-active information distribution, transfers authors' actions to and integrates the readers.

Example: Communication network with integrated journal, atlas, compartments of quality control (virtual slides).

Slogan: Integrate the reader in your presentation

Specificities of open access journals

Copy rights: Remain to the authors and are principally regulated under the creative commons or open –content-license {attribution (by), non-commercial (nc), no-derivatives (nd), share-alike module (sa)}.

Electronic environment: Internet standards, fast distribution, 'copy and paste' procedures, automated connection to data banks (related to journal type, research, readers' interest, search machines, marketing).

Offered assistance for authors: Language proof, article writing, article (research) preparation of additional similar experiments / investigations (replacement of item {disease / macromolecule / symptom} 'A' by item 'B', etc.

Remarks on business models

Journal type	Who pays?	Publisher's Interest	Author's
Conventional	Reader	Reader	Reader
Open Access	Author	Author	Reader
Hybrid	Reader, Author	Reader, Author	Reader

Comments: Research funds usually reimburse the publication fee. The publication fee significantly depends upon the science citation index (SCI) and Journal Impact Factor (JIP). Internationally obligatory business regulations do not exist. Four big players dominate the market {Pearson 5,6; Reed Elsevier 4,4; Wolters Kluwer 3,6; Holtzbrinck Publishing / Springer Group 3,2: {total 16,8 Billion €} in 201.7}.

Journal Diagnostic Pathology



- January 1, 2006 founded
- Publisher: BiomedCentral, Springer
- Open Access Journal (authors pay, 1,500 €)
- Citation Index 1.64 (2012); 1.39 (2010)
- **2006:** 46; **2011:** 130 published articles
- Rejection rate: 40%
- Duration submission – publication: 72 days
- Registered readers: 1,440 (June 2012)
- Total clicks per month: approximately 50,000
- Most accessed articles:
38,500 (all time), 11,000 (one year)

Why to implement new www.diagnosticpathology.eu

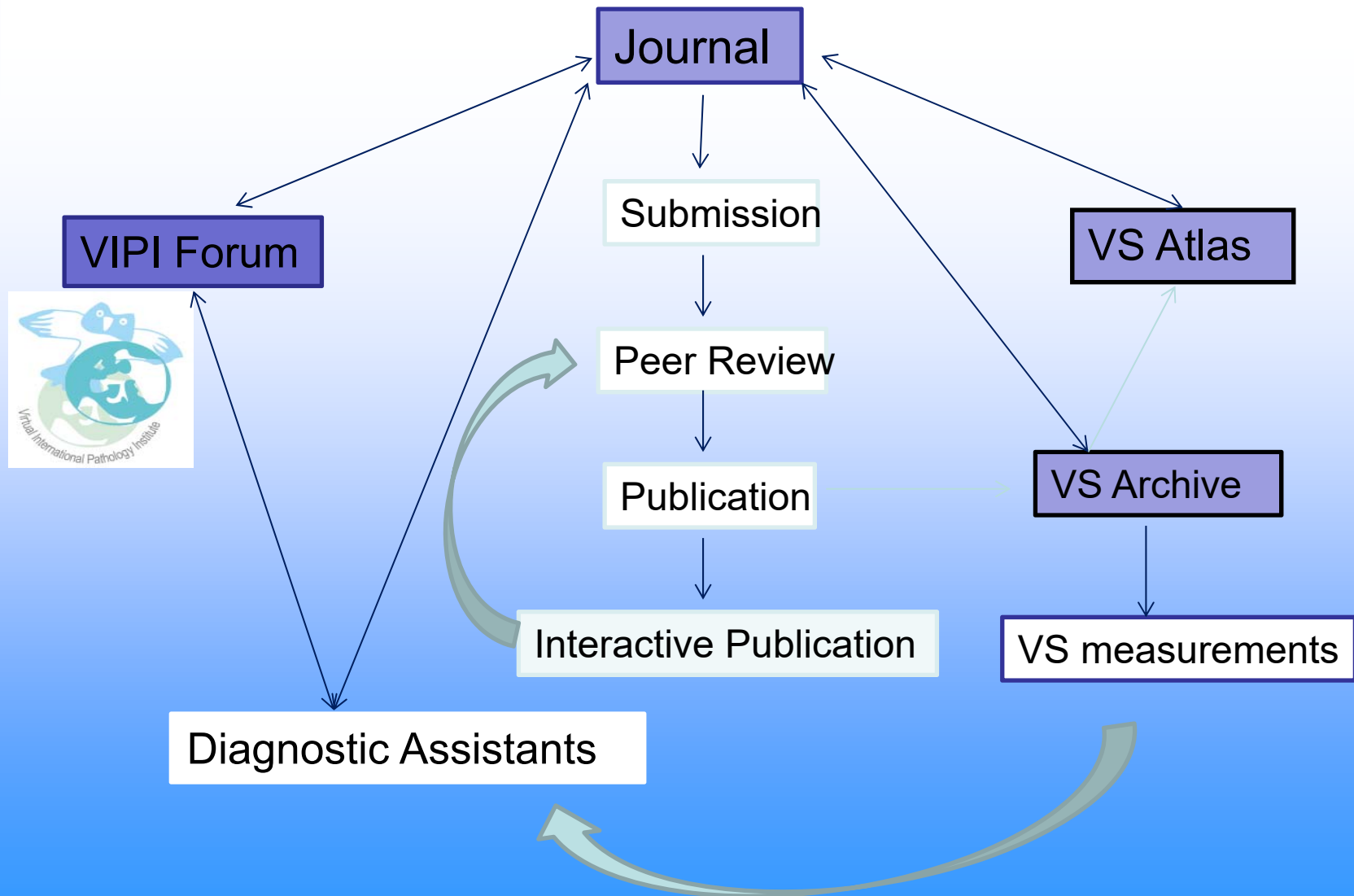


- Four global players in publication market (Pearson 5,6; Reed Elsevier 4,4; Wolters Kluwer 3,6; Holtzbrinck Publishing / Springer Group 3,2: {total 16,8 Billion €})
- No control of publication fees (1,500 – 3,000 €)
- Increasing financial impact on publication content and methods (diagnosticpathology.org (400,000 €/year))
- Loss of scientific and human ethics.
- ***Therefore:*** Sustainable and open source oriented implementation of innovative conceptions in publication. Fully taking advantage of electronic environment. Implementation of innovative scientific approaches.



the diagnostic pathology journal DIAGNOSTIC PATHOLOGY

www.DiagnosticPathology.eu



New electronic features of www.diagnosticpathology.eu



- Publication “besides the microscope”
- Interactive publication
- Mandatory Virtual Slides*)
- Conception of connective network {publication, teaching, education, consultation, diagnosis assistants}**
- Cloud & Grid technology

*)articles with microscopic images only

**)journal, EAMUS, VIPI, Natural & Synthetic Mineral fibers affecting Man,
Lung Disease Atlas, Individually designed data banks



the diagnostic pathology journal DIAGNOSTIC PATHOLOGY

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Research

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Klaus Kayser - Stephan Borkenfeld - Rita Carvalho - Amina Djenouni - Gian Kayser

the diagnostic pathology journal 2015 x:106 (21.Apr.2016)

Research

[Novel anti-human Axl monoclonal antibodies for improved patient biomarker studies](#)

Lavina Ahmed - Sergej M Kiprijanov - Hawa nalwoga - Katarzyna Wnuk-Lipinska - Hallvard Haugen - James B Lorens - Lars A Akslen - David R

the diagnostic pathology journal 2015 x:104 (20.Apr.2016)

Interactive
publication

[Contribution of Measurement to morphologic Diagnostics](#)

Klaus Kayser - Stephan Borkenfeld - Rita Carvalho - Gian Kayser

the diagnostic pathology journal 2015 x:105 (23.Mar.2016)

Publication “besides the microscope”*)




- Specific form “How do I diagnose ...”
- Input of information via Adobe Reader
- Upload of maximum eight images
- Automated references via access to pubmed
- Approved for (German) continuous education
- **Short case report with VS**
 - VS data bank
 - Automated measurements of image features
 - Teaching & individual information content system purposes
 - Image content information analysis
- **Open for innovative perspectives**

*) Preparation of a manuscript in approximately one hour

Publication “besides the microscope”



 the diagnostic pathology journal | DIAGNOSTIC PATHOLOGY

Layout: your new article *How do I diagnose*

The title of your article: *How do I diagnose*

Principal Author First Name

2nd Author Name 3rd Author Name

First Name First Name

4th Author Name 5th Author Name

First Name First Name

Differential diagnoses

Side Findings

Abstract

Upload images

Image 1 Image 2 Image 3 Image 4

Image 5 Image 6 Image 7 Image 8

Keyword - Diagnosis Keyword - differential

Keyword - side findings Keyword - organ/site

Keyword - methods Keyword - others

Reference 1

Reference 2

Reference 3

Reference 4

Reference 5

Reference 6

Reference 7

Reference 8

☐ I agree to the ethics of scientific publication, etc. ☐ I have no competing interests

Name/signature Date

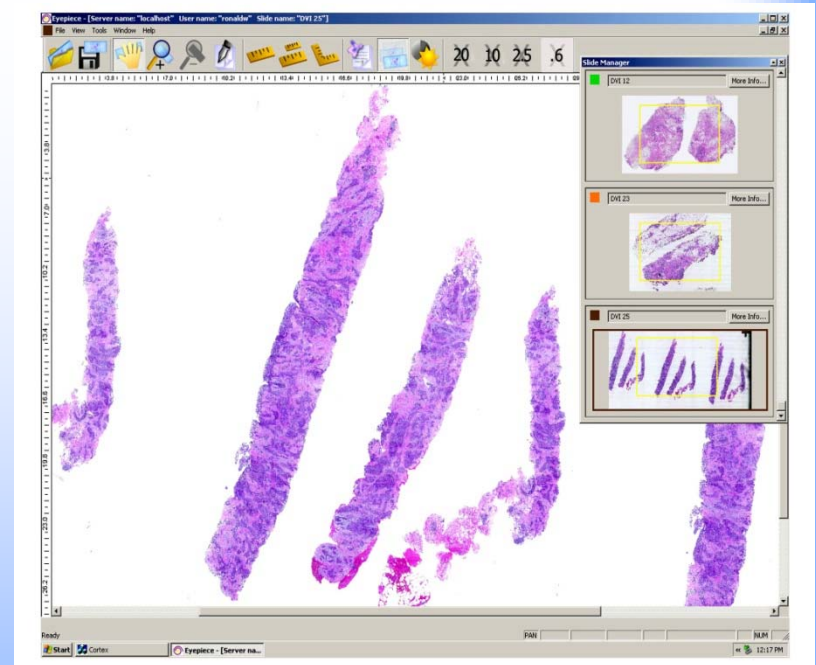
Interactive Publication



- Authors want to add own data to a published manuscript
- They can include their results, ideas etc.
- Authors of the existing article have to agree in principle (at date of submission)
- **It becomes a new article of both authors (teams)**
 - The “old” authors get a new publication
 - The “new” authors have not to repeat already published information
 - Fast and standardized “chain” publication
 - At present limited to two ranks in the chain
- **Predefined spots at the end of {abstract, introduction, methods, results, conclusion}**

what is a virtual slide?

- a virtual slide is the computerized presentation of a complete histological slide.
- the virtual slide technology has been developed on the basis of telepathology.
- telepathology is an electronic, image-related information transfer and classification between 2...n partners (pathologists) either on- or off-line.



Why to include virtual slides ?



- Reader can view the whole slide
- Author has to present the original slide
- Quality assurance
- Increase of journal attraction
- Access to still image selection strategy by readers
- **VS can serve for additional purposes**
 - VS data bank
 - Automated measurements of image features
 - Teaching purposes
 - Image content information analysis
- **Open the door for innovative perspectives*)**

***) inspection of authors' measurements by the reader accessible image analyzing programs, etc.**

Specific features of a virtual slide (in respect to OAP and access activities)

- No obligatory image standards
- Image viewer depends upon scanner
- Large size of virtual slides (2-3 GB)
- Image transfer via server connection.

Consecutives:

- Centralized image acquisition
- Contemporary hard- & software logistics
- Specialized servers
- Specific image data bank
- Cloud technology.



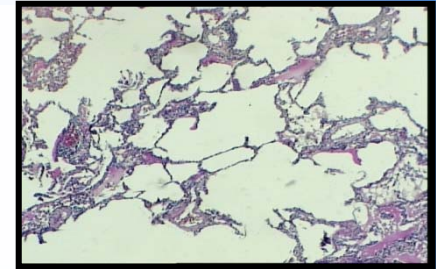
Submission conditions of virtual slides



- Submission of glass slides or authors' VS
- No additional costs
- Return of glass slides (if wanted)
- Glass slides are scanned with 3D Histech scanner
- All major image formats are accepted
- Ownership remains by the author (as that of the article)
- No influence on article acceptance / rejection
- VS receive a separate DOI number (Digital Object Identifier (article identification))
- Stored in a separated image data bank.

Experiences

diagnosticpathology.org



- January 2011 – December 2013
- VS requested from 120, received from 75 articles
- European colleagues hesitate, Asian like
- Manual control of submission only
- Problems with German customs
- Delay of publication
- Problems of logistics, no BiomedCentral support.



diagnosticpathology.eu

- Submission of VS, start March 2018
- All articles with requested VS
- Multiple standards



Perspectives



Inclusion of virtual slides offers

- Improved quality control
- Individual navigation and magnification
- Complete analysis of rare cases / findings
- Construction of image data bank & atlas
- Connection to image measurement systems
Reverse connection with Image Content
Information Systems (diagnosis assistants).
- We invite all interested colleagues / companies
to participate in our projects.

Conclusions

- First trial to include virtual slides into scientific publication
- Sufficient acceptance by the authors
- Positive response from the readers
- Constraints of big publishing companies
- Missing image standards (to be solved)
- Additional logistics due to surface mail
- Promising perspectives
- Learning - teaching – science – ethics.



thank you for your attention

