



## Editorial

### [www.diagnosticpathology.eu](http://www.diagnosticpathology.eu): 2018 Reflections – Perspectives 2019

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#### Abstract

**Basics:** The peer reviewed open access journal [www.diagnosticpathology.eu](http://www.diagnosticpathology.eu) remains the only peer reviewed scientific journal that publishes virtual slides. Several innovative procedures have been implemented too which can only be performed and distributed in an electronic environment. These include for example annotations of text and images, and visual / acoustic display of animations. [www.diagnosticpathology.eu](http://www.diagnosticpathology.eu) is a non - profit oriented and financially autonomous journal. It is supported by volunteers and only obliged to science and medicine. These features permit a flexible and fast implementation of recently developed publication tools. It is part of a scientific communication network and consists of different service nodes which act in a cloud.

**Compartment:** The nodes include the closed PHP forum Virtual International Pathology Institute (VIPI, [www.diagnomx.eu/vipi](http://www.diagnomx.eu/vipi) ), an automated image measuring system (EAMUS), a lexicon of air borne hazards such as natural and synthetic mineral fibers, fine granulate and air pollutants (Natural and Synthetic Mineral Fibers affecting Man), an anatomy training course, and a collection of sixty rare and common lung diseases. All articles of the worldwide first solely electronically distributed journal of pathology (Electronic Journal of Pathology and Histology) are herein accessible without any fee for the readers.

**Short report of 2018:** In focus have been the implement of virtual slides (VS) and the publication of articles which address theoretical and practical issues of digital pathology. A 'general pathologist' might not be familiar with these issues; however, they are already waiting at the horizon. These include discussions on a 'potential replacement' of a diagnostic pathologist by an autonomous computerized diagnosis system as well as basic principles of scientific communication and 'work distribution'.

The guidelines of digital pathology presented by the Professional Association of German Pathologists have been included as well. VS are included in the articles in close collaboration with smartinmedia GmbH & Co KG [www.smartinmedia.com](http://www.smartinmedia.com) using the image visualization and annotation system [www.easyzoom.com](http://www.easyzoom.com).

Five characteristic examples of virtual slides are included in this editorial. They exemplarily demonstrate completely digitized routine glass slides of a rare case (pulmonary Morbus



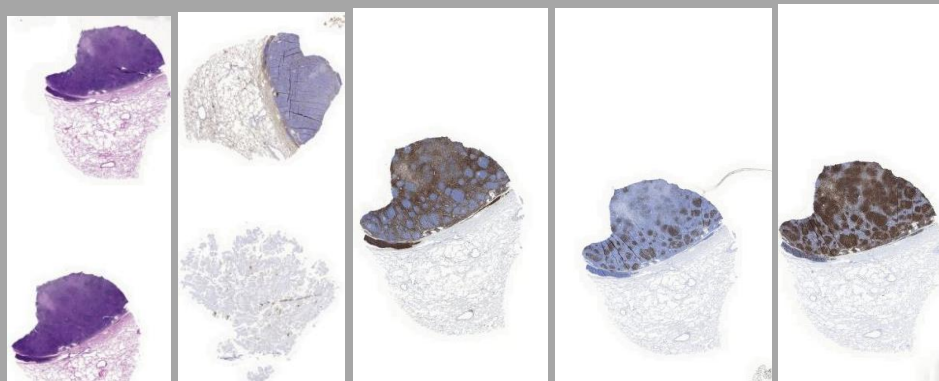
Castleman, hyaline vascular type, HE stain, DAB antibody immune histochemical stains, CD3, CD20, CD21, Factor VIII). The reader might check the image quality, navigate, and annotate the VS. The details of VS image evaluation are described in detail in the appendix I.

All published articles are now open for text annotations by the author and / or reader too, either in a private section or in an environment open for all readers. The details of adequate annotation by the open access system [www.hypothes.is](http://www.hypothes.is) are described in appendix II.

Oral presentations have been equipped with a bar code and provided with a DOI reference. We consider them a bridge between the 'classic review performance' and a potential new publication performance which neglects reviews. It will hold on or to delete the article after a certain time dependent on specific 'article hold on' measurements (which might include conventional rewired statements too). The number of published articles remained limited, and stayed at the low level of publications in 2017. The main reasons have been mentioned in 2017 already and include a missing Scientific Citation Index and listing in journal data banks such as PubMed. Both issues primarily focus on financial issues (the higher the SCI the more expensive is the publication fee). They are of limited scientific value and do not really promote innovative ideas or experiments to our opinion.

**Keywords:** [www.diagnosticpathology.eu](http://www.diagnosticpathology.eu), [open source journal](#), [communication network](#), [virtual slide](#), [automated measurement](#), [pulmonary Morbus Castleman](#).

#### Virtual Slides:



Slide 1

Slide 2

Slide 3

Slide 4

Slide 5

#### Legends of the exemplarily included virtual slides:

Diagnosis: Morbus Castleman (hyaline vascular type) of the lung

*Slide 1:* HE stain of central localized lymph node showing destroyed texture of lymphatic tissue with weak perivascular hyaline fibrosis.

*Slide 2:* Factor VIII AB stain showing no positive reaction.



*Slide 3:* CD3 AB stain showing dense positive lymphocytes in the mantel zone.

*Slide 4:* CD21 AB stain showing positive lymphocytes in the germinal centres.

*Slide 5:* CD20 AB stain showing dense infiltrates of positive lymphocytes in the germinal centres.

*Remarks:* M. Castleman might also arise from intra-pulmonary lymphatic tissue in analogy to M. Crohn which might also occur in or involve the lung.

## Editorial

### Principle considerations:

Electronic communication is a prerequisite for globalization and value-free distribution of commerce, ethics, believe, politics, science or medicine. The communication 'carriers' form a distributed network. They have been standardized and permit worldwide access to any kind of information (data).

The release of information makes only sense if an appropriate goal should be reached. Herein, the financial issues play a major role. Different goals such as ethics or science are of minor influence because all of them require financial resources ('money') to become distributed.

Open access journals are a representative example how, and to which extend primarily scientific (value - free and reproducible) communication is influenced by globalization.

The number of journals and publishers who offer electronic information distribution with the associated open access business model has increased in 2018 too. It accounts for several thousand per year. The focus of recently implemented medical open access journals and that of established ones broadens continuously and tries to include numerous different medical specificities in one journal only.

This behavior is a sign of financial interest and directly associated with the business model of open access journals. The more authors are attracted for publication the higher is the financial benefit for the publisher as well as the easier is the earning of a high 'ICI' and the lower is the risk of failure. Such a business model is also characteristic for predatory journals which are a negative mirror of globalization.

Open access articles are subject to specificities of the electronic (virtual) environment. These specificities include a reversible time ordinate and only two mandatory space related reversible coordinates, if a robust inner space (object) and a surrounding environment have been designed.



The derivatives include open start and end points, flexible (hard to control) legal regulations, potential export of information context by solely inner (virtual) communication, potential creation of exclusively virtual goals, and finally implementation of independent virtual ethics. These might no longer remain identical with those of the real (human) world.

#### New implementations:

The performance of electronic communication and its derived distribution of scientific and / or medical data possess their own specificities and regulations. Some of these characteristics seem to be of advantage in diagnostic pathology.

We mention the following examples: The real world acts in non-reversible time schedules. It clearly separates the author from the reader. The electronic environment permits the transfer of actions from the author to the reader.

The first example is the publication of whole slide images (virtual slides, VS). The reader can navigate, magnify, select still images of published VS in our journal. A characteristic example of VS interpretation and evaluation is included in this editorial. The reader might investigate the included VS and confirm / modify the derived diagnosis (Morbus Castleman, hyaline vascular versus plasma cell type).

He / she are no longer dependent upon the 'preselected' regions of interest. To the opposite, the whole slide can be screened, photographs of selected areas can be taken and stored in an own, reader – associated section or catalogue.

Several articles which exemplarily demonstrate the advantage of VS publication have been published in [www.diagnosticpathology.eu](http://www.diagnosticpathology.eu) in 2018. They describe and discuss different issues such as 'intra organ' tissue heterogeneity, cellular heterogeneity in malignancies, and permit to evaluate the slide quality of automated tissue section machines. These insights cannot be published by conventional paper printed publications. They require the publication of VS.

The second goal is to forecast the development of digital pathology. The publication of the guidelines in practicing digital pathology imparts the experiences and regulations of the *Professional Association of German Pathologists*.

This article <http://www.diagnosticpathology.eu/content/index.php/dpath/article/view/266> guides all interested pathologists on the way to implement slide scanners, virtual microscopy, and electronic communication with the clinical partners.

The next example is the implementation of [QR codes](#) which is of advantage for both the authors who presented their congress contribution and the readers, who could not participate in that specific event. [The QR codes](#) are already shown at the first slide of a conference session and can be acquired 'live' during the presentation. The authors have not to modify their presentation and receive a DOI listing in addition.

The most recently implemented feature is the potentiality to annotate text and VS in any published article and to store it in a private or public repository. The idea of this new method is



to encourage readers, experts, and non - specialists to start and continue a detailed discussion. New considerations and proposals as well as an agreed interactive publication might follow.

None of our competitors offers these opportunities to our knowledge, because their implementation relies on scientific interests and is at least partly hindered by additional costs and financial risk.

Our up - coming ideas will include trials of review forecasting and automated classic review processing. Herein, our past experiences of the crudely implemented PARIS project (Pathology Automated Review Information System) will probably assist us. The latest development in information technology are probably mature enough and will allow to implement a non - biased and solely research oriented review system.

Naturally, image analysis is also in focus of our efforts. Multiple research teams are working on deep learning systems which require extensive data sources and often long computation times.

Our approach differs in so far, as it clearly distinguishes between signal, information, communication, and the corresponding environment. These algorithms permit the forecast of any measurable system and, in addition, the evaluation of the systems' predisposition to create its own goal or even ethics. The concept of entropy and entropy flow seems to be appropriate to derive promising results. It might be useful to be applied to issues of open access publications too as previously discussed in one article of our journal

All these efforts focus on freedom in research and ideas. They are basically in contradiction to financial resources which regulate globalization and finally create boundaries at the same moment when they have been released.

We encourage all interested colleagues to share with us their ideas, to let us know their experiences and interests, and, if possible, to support all our initiatives in order to promote science, diagnosis and treatment of all humans who are in need.

Christmas time is close. Independent on believe it reminds us of the power of a young child despite its birth under miserable conditions. Nobody, neither its father nor its mother would have expected its immense influence on human behavior and cultural development.

Christmas and any birth strongly call for a peaceful, merciful, future oriented and educated world. Having the idea of Christmas in mind, we especially thank

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Dr. Manfred Dietel, MD

Dr. Etienne Martin, MD

Dr. Robert Ogilvie, PhD

Dr. Ronald S. Weinstein, MD



for all their efforts and assistance to further develop our journal.

Searching for innovative ideas and projects we welcome all interested colleagues to contact, support and collaborate with us via our technical director Dr. Stephan Borkenfeld (s.borkenfeld@web.de ).

We wish all our readers, reviewers, and interested colleagues a Merry, Peaceful Christmas, and a Happy, Healthy, Prosperous and Enjoyable New Year.

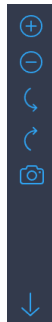
Klaus Kayser Editor in Chief



## Appendix I: How to navigate, annotate, select and prepare still images of included VS by use of easyzoom.com

Click on the included VS. The VS will open, and navigation buttons

are shown on the left side



and the annotation buttons on the right side.



These require a registration for safety reasons.

## Appendix II: How to annotate an article.

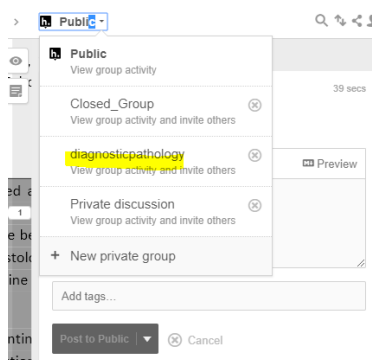
1. Open the pdf document.
2. Click on folder at the right side of your screen:



3. Sign up or log in
4. All published articles are now open for text annotations by the author and / or reader too, either in a private section or in an environment open for all readers.



5. Write your annotations and post them to public, private or to diagnosticpathology. You have to be invited to the group diagnosticpathology by email ([info@diagnosticpathology.eu](mailto:info@diagnosticpathology.eu)).



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