Global Recognition of Qualified Toxicologic Pathologists:  
Where We Are Now and Where We Need to Go*  

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Robert A. Ettlin, Brad Bolon, Ian Pyrah, Yoichi Konishi, and Hugh E. Black  

Address correspondence to Dr. Robert Ettlin, Novartis Pharma AG, WSJ-386.14.35,  
CH-4056 Basel, Switzerland; telephone: +41 61 324 4490; Fax: +41 61 324 3874; E-mail: robert.ettlin@novartis.com.

* The content represents the personal views of toxicologic pathologists from three continents: Asia, Europe and North America. They are IFSTP representatives from the BSTP, ESTP, JSTP, and STP. The document has been reviewed and endorsed by the senior bodies of these societies.
### Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
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<tr>
<td>ABT</td>
<td>American Board of Toxicology</td>
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<tr>
<td>ABVS</td>
<td>American Board of Veterinary Specialties</td>
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<td>ABVT</td>
<td>American Board of Veterinary Toxicology</td>
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<td>ACVP</td>
<td>American College of Veterinary Pathologists</td>
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<td>BSTP</td>
<td>British Society of Toxicological Pathologists</td>
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<td>CRPTP</td>
<td>Committee for the Registration of Laboratory Animal / Toxicological Pathologists in the Netherlands</td>
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<tr>
<td>DESV</td>
<td>Diplômes d'Etudes Spécialisées Vétérinaire</td>
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<tr>
<td>ECVCP</td>
<td>European College of Veterinary Clinical Pathologists</td>
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<td>ECVP</td>
<td>European College of Veterinary Pathologists</td>
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<td>ESTP</td>
<td>European Society of Toxicologic Pathology</td>
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<td>IATP</td>
<td>International Academy of Toxicologic Pathologists</td>
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<td>IFSTP</td>
<td>International Federation of Societies of Toxicologic Pathologists</td>
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<td>JSTP</td>
<td>Japanese Society of Toxicologic Pathology</td>
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<td>KSTP</td>
<td>South Korean Society of Toxicologic Pathology</td>
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<tr>
<td>LA STP</td>
<td>Latin American Society of Toxicologic Pathology</td>
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<tr>
<td>MRCPath</td>
<td>Member of the Royal College of Pathologists (United Kingdom)</td>
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<tr>
<td>STP</td>
<td>Society of Toxicologic Pathology (North America)</td>
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<tr>
<td>NVT</td>
<td>Nederlandse Vereniging voor Toxicologie (Netherlands Society of Toxicology)</td>
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<tr>
<td>RENI</td>
<td>Registry Nomenclature Information System</td>
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<tr>
<td>SFPT</td>
<td>Société Française de Pathologie Toxicologique (French Society of Toxicologic Pathology)</td>
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Introduction

Pathology examinations to characterize unwanted effects of chemicals, drugs, particles and biological components on living organisms and the ecosystem are a cornerstone of modern toxicologic investigations. Toxicologic pathology uses a holistic approach to study the relationships in various test systems between pharmacologic and toxicologic effects of compounds at various doses, given by various routes and for various durations. This broad scope renders the practitioner of toxicologic pathology an essential member of public health teams that protect the environment and the communal wellbeing of people and animals throughout the world.

To function, toxicologic pathologists (whether practicing primarily in anatomic or clinical pathology) require a comprehensive understanding of morphologic and clinical pathologic features of tissue injury, and mechanisms of disease founded on a thorough understanding of anatomy, biology, medicine, physiology, pharmacology and toxicology. Armed with such knowledge, toxicologic pathologists contribute significantly not only to hazard identification and risk assessment, but also to risk evaluation and to making proposals for risk avoidance and therapeutic intervention to counter toxic effects (e.g., Morton et al, 2006; Boorman et al, 2002; Pilling, 1999; Tryphonas and Germann, 2002; Tryphonas et al, 1994).

Institutions that employ toxicologic pathologists as well as regulators and health authorities who must rely on the judgment of toxicologic pathologists are interested in methods by which the competence of toxicologic pathologists may be substantiated. Such assessments are quite complex due to the absence of globally recognized standards by which to judge toxicologic pathologists. In all countries, toxicologic pathologists have come from different disciplines such as veterinary medicine, human medicine, comparative pathology, toxicology, pharmacology, biology, and others. Furthermore, significant differences exist among the world’s regions regarding the requirements for education, experience and ongoing training of toxicologic pathologists (e.g., Wester, 2003).

Among the challenges facing the toxicologic pathology profession today, three important ones with global ramifications are:
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- to define those characteristics which would be likely to result in a consensus judgment that a given individual is a qualified toxicologic pathologist,
- to develop and implement a globally acceptable set of criteria based on these characteristics to recognize competency in toxicologic pathology, and
- to assist the toxicologic pathology communities in developing nations to construct systems of training and accreditation that will best suit their particular needs while still conforming to global standards of proficiency in the field.

The objective of this paper is to initiate discussions among the worldwide community of toxicologic pathologists which will begin addressing these three objectives.

**Means of Acquiring Proficiency in Toxicologic Pathology**

Elements which can be employed to endorse the capability of toxicologic pathologists generally fall into four categories: education, examination, experience, and external evaluation. The timing and weight given to these four measures – alone or in combination – varies among regions and institutions around the globe. Regardless of the weighting, these traits are the only means by which competence can be established in toxicologic pathology. This section provides an update on some of the mechanisms used in various localities (see also Wester, 2003).

*Education*

Many educational institutions around the world have university-level programs in which some exposure to toxicologic pathology is obtained. The most comprehensive training in this discipline is obtained in those venues in which the core curriculum includes exposure to multiple courses in both comparative pathology and toxicology which emphasize broad (systemic) rather than limited (single-organ) knowledge of normal and morbid anatomy and physiology. Such concentrations typically are best achieved in medical schools (human or veterinary core curricula), although a passable understanding may also be acquired in some graduate school settings (e.g., comparative pathology, toxicology, or pharmacology programs). In some instances, considerable effort is spent coordinating the energies of multiple institutions in a given region to provide more wide-ranging contact (e.g., governmental research agencies,
chemical and pharmaceutical industries, and universities with broad programs related to toxicology and pathology in locales such as Research Triangle Park, North Carolina, USA [e.g. NIH/NIEHS website], and Surrey, UK [University of Surrey website]).

It is essential that this theoretical foundation be followed by extensive hands-on instruction in anatomic pathology and clinical pathology. The most thorough practical training in this field is best attained in the context of a medical school (human or veterinary) residency (incorporating correlative practice in anatomic and clinical pathology) and/or through a mentored on-the-job apprenticeship, both of which employ a case-oriented approach to impart problem-solving skills.

Once the fundamentals and nuances of toxicologic pathology have been acquired in this manner, toxicologic pathologists must still continue to develop and maintain their proficiency. One common mechanism for continued education is attending courses at professional meetings for pathology, toxicology, or toxicologic pathology (e.g., British Society of Toxicologic Pathologists [BSTP] training modules; C.L. Davis, D.V.M. Foundation seminars [CL Davis Foundation]; French Diplômes d'Etude Spécialisées Vétérinaires [DESV] anatomic pathology symposia). Individuals can also undertake targeted self-study of classic texts in toxicologic pathology (e.g., Boorman et al, 1990, 2002; Greaves, 2007; Haschek et al, 2002; Haschek and Rousseaux, 1998; Jones et al, 1997, 1998; Maronpot et al, 1999; Mohr, 1992-1997. 2001; Mohr et al, 1992-1994, 2001; and further text books), perusing articles in pertinent technical journals (e.g., Experimental and Toxicologic Pathology, Toxicologic Pathology, Journal of Toxicologic Pathology, etc.), or by accessing relevant reference materials over the Internet (e.g., websites for RENI and TOXNET). Certain pathology societies actively promote the tracking of these continuing education endeavors by either providing a database into which such experiences can be logged or by requiring periodic pathology recertification based in part on an individual's list of ongoing educational ventures.

Examination

Various organizations offer certifying tests to accredit veterinarians and physicians as pathologists. Prominent examples include the single-tier, multi-national board examinations in veterinary anatomic pathology (websites for the American College of Veterinary Pathologists [ACVP] and European College of Veterinary Pathologists [ECVP]) and veterinary clinical pathology (websites for the ACVP or European College
of Veterinary Clinical Pathologists [ECVCP]). While they seek to determine overall competency in the core information required for the successful conduct of pathology investigations, these vehicles typically include some questions designed to assess familiarity with toxicologic pathology. Indeed, for several years the veterinary pathology section of the ACVP examination contained a subsection dedicated specifically to toxicologic pathology. However, these tests are not designed to specifically assess one’s expertise in toxicologic pathology but rather expertise in general pathology, a fact emphasized by the discontinuation of the ACVP toxicologic pathology subsection due to a scarcity of applicants electing to take it. Nevertheless, successful completion of such general certifying examinations does afford a firm basis for proving proficiency in pathology, which is an absolute prerequisite for any subsequent demonstration of competence in toxicologic pathology. In fact, in at least one nation (the United States) certification in either anatomic pathology or clinical pathology is the major prerequisite for those seeking employment as a toxicologic pathologist.

An alternative to directly establish competence in toxicologic pathology is to require individuals to pass a certifying examination targeted specifically to toxicologic pathology. At present only the Japanese Society of Toxicologic Pathology (JSTP) and the Royal College of Pathologists (United Kingdom) administer tests designed to examine one’s knowledge of toxicologic pathology (Wester, 2003; JSTP website; RCPath website). However, toxicologic pathologists in many nations also have – and take – the opportunity to complete separate certifying examinations in toxicology (for an overview, see e.g., TOXLINKS website) as an indirect means of demonstrating expertise in toxicologic pathology (see e.g., Eurotox website, Ettlin, 1992; Ettlin et al., 2001; Ettlin and Hodel, 2000; Fowler and Galli, 2007). For instance, in the recent past a proposal was made that ACVP-certified veterinary anatomic and clinical pathologists who had also attained a toxicology credential by examination (via the ABT or ABVT) be admitted to a toxicologic pathology sub-specialty within the ACVP. However, the plan for the sub-specialty was set aside when the organizers and the American Board of Veterinary Specialties (ABVS, the body that oversees the ACVP certifying process) could not reach agreement regarding the proper means of admitting new members (the sub-specialty had designed a system based mainly on peer review of credentials, while the ABVS strictly favored a formal examination process).
Genesis of a globally acceptable certifying examination in toxicologic pathology is impractical for now, and two major obstacles will face such an initiative if it is ever attempted in the future. The first impediment will be the difficulty in defining a single test which can universally certify proficiency in toxicologic pathology given the specialized tasks that most individuals emphasize in their daily practice (e.g., anatomic pathology, or clinical pathology, or regulatory-related activities, or discovery / investigative efforts, but seldom all four). An obvious solution to this quandary would be to develop multiple examinations, each dedicated to testing competence in a given arena of knowledge; the dual pathways for certification in anatomic pathology or clinical pathology within the ACVP are one successful example of this approach. If this strategy is adopted, the initial priority might be to develop a global platform for evaluating “bench” anatomic pathologists engaged in regulated studies, as the efforts of such individuals are liable to be reviewed by the various regulatory bodies that exist in multiple nations. The second major barrier will be in attempting to convince individuals who already have obtained other pathology certifications (e.g., ACVP, ECVP, JSTP, RCPath) and/or acquired considerable experience to undergo another arduous hurdle. However, although these two obstacles may preclude wide acceptance of a worldwide certifying examination in toxicologic pathology for some time to come, the high degree of assurance that an individual who has passed a rigorous examination that tests both theoretical knowledge and practical skills demands that this option be given due consideration.

Experience

Employers, regulatory agencies, and health authorities recognize that the quality of interpretations varies among toxicologic pathologists. These constituencies recognize that neither education (whether formal medical or graduate training or merely occasional courses) nor a general examination in pathology or toxicology is a suitable substitute for actual experience in toxicologic pathology. Many skills of the toxicologic pathologist must be learned “on the job.” At this stage of training, close mentorship by experienced toxicologic pathologists is critical for future development. Except the specific certifying examinations listed above (JSTP, RCPath), the current means for assessing whether a person’s actual endeavors in toxicologic pathology have been sufficient to create proficiency in the field is a formal review of his or her documented experiences by a credentialing committee whose members have been previously identified as qualified toxicologic pathologists. In the Netherlands, for example, toxicologic pathologists are
recognized by the Committee for Registration of Laboratory Animal / Toxicologic Pathologists (CRP/TP), which is authorized by the Dutch Society of Pathology (NVvP, formerly NPAV) and the Royal Veterinary Association of the Netherlands (KNMvD). An individual can be registered as a toxicologic pathologist following successful completion of a 4-year, post-academic, individualized training program (see CRPTP website). The candidate needs to have a position in toxicologic pathology under the mentorship of a previously accredited senior toxicologic pathologist; ultimately the mentor is the intermediary between the candidate and the CRP/TP. Dutch toxicologic pathologists are reregistered at 5-year intervals if a reappraisal of their credentials shows suitable continued training and experience within the field.

A similar format of credentialing by document review is the basis for the “Fellow” designation accorded by the International Academy of Toxicologic Pathologists (IATP). The IATP, founded in 1999, is an offshoot of the International Federation of Societies of Toxicologic Pathologists (IFSTP)\(^1\), which was itself launched in 1989 to – among other activities – facilitate the creation of worldwide standards for recognizing the competence of qualified toxicologic pathologists (IFSTP website). The IATP was established especially to craft criteria for accrediting qualified toxicologic pathologists. Recognition as an IATP Fellow is reserved for long-established scientists who have gained global acknowledgement as experts in the practice of toxicologic pathology through scientific leadership and innovation to benefit society and their profession (IATP website). Accreditation as an IATP Fellow is based on formal training in pathology, but even more so on demonstrated experience in toxicologic pathology: proven expertise and continuing practice as evidenced by significant external recognition through peer-reviewed publications, presentations, membership in prestigious organizations (including expert panels and review bodies comprised of toxicologic pathologists), and university assignments. At present, acknowledgement as an IATP Fellow is the only method that attempts to provide global recognition of proficiency in toxicologic pathology.

\(^1\) Current membership in this global professional and scientific coalition of TP includes the regional societies of toxicologic pathology representing Europe (ESTP) and North America (STP) as well as the national societies of toxicologic pathology from France (SFPT), Japan (JSTP), the Netherlands (NVT), South Korea (KSTP), and the United Kingdom (BSTP). Dedicated societies have also been founded recently in Latin America and India, although these societies are not yet IFSTP members.
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External Evaluation

In the modern practice of toxicologic pathology, perhaps the most important means of routinely demonstrating competence in toxicologic pathology is by subjecting an individual’s work to rigorous external evaluation by an experienced colleague. Indeed, this peer review process, even though conducted on a case-by-case basis, combines the best attributes of education, examination, and experience – and does so with regularity. Collegial interactions among toxicologic pathologists with different backgrounds (i.e., divergent educational concentrations and areas of practical expertise) are not only valuable means of attaining harmony in data interpretation but has the added advantage of ensuring that such decisions reach a certain level of quality. That said, in our experience the peer review process is most efficient and effective when both the original pathologist and the reviewing pathologist already have a common foundation of toxicologic pathology knowledge. Such uniformity of understanding implies that the quality of an individual toxicologic pathologist can be assessed against a truly universal benchmark, which further suggests that a worldwide mechanism of credentialing toxicologic pathologists based on some globally accepted standard would be a valuable means of facilitating transnational peer review (especially those involving individuals from countries that do have longstanding traditions of toxicologic pathology practice).

Characteristics of a Qualified Toxicologic Pathologist

Obviously, a qualified toxicologic pathologist will have some combination of the education, examination, and experience credentials listed above. Proficiency as a toxicologic pathologist can be assumed in individuals who have attained education and professional experience in toxicologic pathology, and have affirmed that proficiency first by completion of a certifying examination in anatomic pathology or clinical pathology and then more specifically either by completion of a relevant examination (e.g., board certification in toxicologic pathology) or by review and approval by a competent credentialing committee comprised of previously recognized peers in toxicologic pathology. Persons who meet all these criteria – education, examination, experience – should have little difficulty in being acclaimed as having sufficient credentials either by their peers in toxicologic pathology, by those institutions which hire toxicologic pathologists, or by regulatory agencies and health authorities around the world.
But what about toxicologic pathologists who have not completed a certifying examination or who have not had their credentials reviewed by a committee of their peers? For many toxicologic pathologists working in either industry or regulatory bodies (i.e., where publications and presentations are often thwarted) or for younger members of university-based toxicology institutes (who have had little time to achieve widespread recognition), it can be difficult to gain public recognition as a skilled toxicologic pathologist regardless of the length and types of toxicologic pathology experience they may have. The needs of these individuals, and of the institutions that need the skills of qualified toxicologic pathologists, are addressed in the second task in accreditation.

As a community, toxicologic pathologists throughout the world are invited to debate the need and the composition of a universal set of criteria by which individuals can be affirmed as competent toxicologic pathologist. But how should we proceed from here?

**Means of Recognizing Qualified Toxicologic Pathologists**

Several avenues are available for defining a global set of criteria by which toxicologic pathologists can be recognized as having attained proficiency in toxicologic pathology.

The three basic options for assessing one’s likelihood of being a qualified toxicologic pathologist are:

- to define and disseminate a standard pool of knowledge and skills with which a proficient toxicologic pathologist must be familiar,
- to explicitly examine individuals for a common store of core knowledge in the field, or
- to define an algorithm by which relevant education and experiences can be weighed independently by a group of peers.

These three alternatives essentially serve as extensions of the practices described above. However, if implemented, any of these alternatives will engender a new system providing international recognition based on global standards of expertise, and as such would go beyond the sanctioning supplied by the national and regional recognitions that are presently in place.

 Undertaking the first option, the establishment and distribution of universally accepted core principles and practices relevant to the competent practice of toxicologic pathology,
must be the first objective in attempting to achieve international harmonization in the field. Considerable resources have already been expended to standardize toxicologic pathology practice among developed nations, with notable success. Mechanisms by which such knowledge has been promulgated include transnational certifying examinations (e.g., ACVP, ECVP) and pathology organizations (e.g., BSTP, ESTP, STP) as well as professional exchanges of toxicologic pathologists among developed countries and between developing and developed nations. However, even more energetic aid from toxicologic pathologists in developed regions will be needed to ensure that the growing toxicologic pathology communities in developing nations can meet existing international standards of competence while still serving the specific needs of their own constituents. The key to continued harmony in this endeavor will be to avoid any old-style imperialistic pronouncements regarding toxicologic pathology practice (“a right way exists, and since only we know it you will be told how to comply”) in favor of a truly cooperative approach (“best practices exist, and we think that we can work together to adapt them to your situation”). We believe that the best means for continued promulgation of core toxicologic pathology knowledge is a combination of educational exchange whereby experienced toxicologic pathologists from developed nations routinely travel to lecture and/or produce web-based media to teach in developing nations coupled with the extension of routine and rigorous peer review to all regions of the globe.

The only logical choice for carrying out the second option – the formal examination of core knowledge in toxicologic pathology – would be to devise an international certifying examination in the field. This test could be designed to cover basic understanding of major concepts in toxicology and toxicologic pathology (with respect to both anatomic pathology and clinical pathology elements of practice) such as would be presented in central textbooks / references from these disciplines. The worldwide reach of the Internet would allow it to be given globally with minimal expense as a multiple-choice exercise. This format would even test candidates on their ability to recognize classic lesions in toxicologic pathology at the gross, microscopic, and ultrastructural level via the use of high-quality digital images. The major drawbacks to this option would be:

(1) the need to maintain an international examination committee to regularly revise the content,

(2) the possibility of inappropriate support of a candidate by an experienced colleague,
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(3) the difficulty of demonstrating the relevance of the exam content and the appropriateness of the passing score based on objective information,

(4) the potential need to develop multiple platforms to accurately test competency in different arenas of practice (e.g., anatomic vs. clinical vs. discovery/investigative vs. regulatory toxicologic pathology) in subsets of individuals based on their routine roles, and

(5) the difficulty in accommodating differences in certain major factors that vary substantially among nations (e.g., primary language, regulatory mandates, animal care standards, etc.)

A final difficulty facing proponents of an international certifying examination in toxicologic pathology is a question of philosophy, to wit whether or not proficiency in such tasks is best regulated at the national level or at the global level. The traditional approach has been to recognize proficiency at the national level, by whatever method the national community of toxicologic pathologists affirms to be appropriate. However, this proclivity by no means precludes the creation of a global examination in the future as a means of demonstrating that a standard foundation of theoretical and practical knowledge in the field has been attained.

If the examination path is excluded, two rational options still exist for evaluating the suitability of an individual’s comprehension of toxicologic pathology on a worldwide basis. Both would provide the global toxicologic pathology community with a continued infusion of creativity as people with divergent backgrounds are recognized as qualified toxicologic pathologists and can bring their own unique educations, experiences, and thought processes to bear on various toxicology problems.

• The first alternative would be to develop a global system for tracking any given continuing education activities in toxicologic pathology. Such a database would be simple to administer, especially if maintained using an Internet format, because each individual would be responsible for entering his or her own training exercises. The principal problems with this choice would be (1) preventing fraudulent entries and (2) devising a means by which interested parties (e.g., potential employers, regulators) could readily ascertain the qualifications of toxicologic pathologists. Furthermore, a
mere record of continuing education credits should not be considered an adequate mechanism on which an initial recognition of competence may be based.

- The second alternative would be to conduct a formal review system by which a committee of previously qualified toxicologic pathologists could measure and approve the training and experiences undertaken by more recent entrants to the field. This mechanism would be particularly attractive to those individuals working at “the bench” in contract laboratories and industry who routinely engage in such traditional activities as macroscopic and microscopic evaluation of tissues from toxicity studies (anatomic pathologists) or review of clinical pathology data (clinical pathologists). However, this route could also apply to pathologists engaged in non-traditional functions (such as discovery pathology and investigative toxicology) and mid-career scientists doing toxicologic pathology research in academic institutions.

Advantages of employing this second option are that the new system could be modeled after the existing IATP Fellow credential (which represents the first global attempt to provide international recognition of proficiency in the field) and may even be administered by the IATP or a separate agency on behalf of the Member Societies coordinated by IFSTP. This choice would also avoid the disadvantages of a self-reported continuing education database. However, a potential drawback of the review system is that a single certification likely would be insufficient to affirm competence with respect to both performing regulated study work and investigative activities.

In our experience, toxicologic pathologists engaged in any aspect of the discipline for an extended period (5 or more years under the supervision of an experienced toxicologic pathologist) will have learned toxicologic pathology fundamentals sufficient to maintain their employment. In addition to this common core knowledge, a major strength for the profession of toxicologic pathology is its diversity in education and experience. For this reason any future effort to devise a global standard for qualifying proficiency in toxicologic pathology should be geared more to ensuring that the types of experiences an individual has received have been of sufficient quality and quantity to recommend him or her as a proficient toxicologic pathologist.

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2 The original IATP criteria were established and accepted by the following, then existing societies of toxicologic pathology under the coordination of the IFSTP: the Austrian-German-Swiss GTP (now ESTP), the Dutch NVT, the French SFPT, the Italian STP, the Japanese JSTP, the North European STP, the North American STP, and the United Kingdom BSTP
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One final alternative must also be contemplated when considering how to best promote competence in the practice of toxicologic pathology throughout the world, namely to direct the resources of the worldwide toxicologic pathology community to enhancing toxicologic pathology education in developing nations. Such efforts are already well underway in several venues. Such a training strategy could be carried out without the need for a global means of accrediting professional quality. However, one potential hazard of such educational initiatives is that they provide no direct means of assessing whether or not training time has actually led to successful inculcation of the precepts that have been imparted. An obvious solution to this hazard, though by no means one which can be rapidly or simply implemented, is to extend such cooperative training efforts to help the toxicologic pathology communities in developing nations to organize their own post-graduate programs and certifying processes. In this manner the hard-won experiences of developed countries in devising means to effectively recognize quality in toxicologic pathologists may lead to a gradual spread of similar (if not identical) mechanisms in developing nations.

Where We Need to Go Now

The rapid pace of globalization is already encompassing the discipline of toxicologic pathology. It will behoove the global toxicologic pathology community to address sooner rather than later the need for global acknowledgement of common standards by which a qualified toxicologic pathologist can be readily recognized, so that our communal experience can effectively mold the final product.

Therefore, the IFSTP and its credentialing body IATP – two organizations seeking to promote international standards for the global community of toxicologic pathologists – are proposing that the global toxicologic pathology community begin a formal discussion aimed at setting (1) universal standards for core knowledge in toxicologic pathology and (2) a universal mechanism by which proficiency as a toxicologic pathologist can be recognized. Progress toward these two objectives should benefit individual members of national and regional societies of toxicologic pathology and the institutions (e.g., industry, regulatory and health agencies) which rely on the scientific interpretations produced by these members. The first goal is being advanced effectively albeit in a piecemeal manner by the ongoing efforts of experienced toxicologic pathologists to
teach and perform peer reviews without respect to national borders. The second goal
will be addressed by the placement on the IFSTP website of a preliminary proposal on a
potential new credentialing mechanism (under the heading “IFSTP Publication” –
“Accreditation as IFSTP/IATP Accredited Toxicologic Pathologist”); it will be updated
regularly to maintain its accuracy as the discussion moves forward. Please participate in
this discussion by relaying your comments, concerns, and suggestions to the elected
representatives of your society of toxicologic pathology or to the editor of a toxicologic
pathology journal so your comments may receive due consideration. The debate is
about our future, and that future is now.
References

ACVP - American College of Veterinary Pathologists
http://www.acvp.org/

CRPTP - Committee for the Registration of Laboratory Animal / Toxicological Pathologists in the Netherlands
http://www.toxicologie.nl/uk/doc/toxpath%20crptp.PDF


BSTP training modules
http://www.bstp.org.uk/html/about_the_modules.html

CL Davis, DVM Foundation
http://www.cldavis.org/

DESV - Diplômes d'Etude Spécialisées Vétérinaires (veterinary pathology postgraduate courses)

ECVCP – European College of Veterinary Clinical Pathologists
http://www.esvcp.org

ECVP - European College of Veterinary Pathologists
http://www.ecvpath.org/


Eurotox
http://eurotox.umh.es/

Experimental and Toxicologic Pathology. Journal of the European Society of Toxicologic Pathology
http://www.elsevier.de/etp


IATP - International Academy of Toxicologic Pathology:
http://www.iatpfellows.org/

IFSTP - International Federation of Societies of Toxicologic Pathologists
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http://ifstp.org/


Journal of Toxicologic Pathology. Journal of the Japanese Society of Toxicologic Pathology
http://www.jstage.jst.go.jp/browse/tox/-char/en

JSTP - Japanese Society of Toxicologic Pathology


http://www.toxpath.org/Position_Papers/GLP.pdf
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RCPath - Royal College of Pathology
http://www.rcpath.org/

NIH/NIEHS: Post-doctoral fellowship in toxicologic pathology.


RENI: The standard reference for nomenclature and diagnostic criteria in toxicologic pathology
http://www.goreni.org/

Toxicologic Pathology: Journal of the (North American) Society of Toxicologic Pathology and British Society of Toxicologic Pathology
http://www.toxpath.org/toxpath.asp

TOXLINKS

TOXNET


University of Surrey: MSc/postgraduate diploma in applied toxicology.
http://www.surrey.ac.uk/SBMS/pg_taught_courses/Applied-Toxicology.html