Welcome letter from the President

Quality is difficult to define. Since time immemorial, philosophers have tried to describe it and every human being has clung to their own ideas of what quality means to them. Quality in pathology is a multifaceted issue: when it comes to pathological evaluation to determine the treatment of a patient, high quality is vital in terms of reliability, objectivity, timeliness, repeatability and clarity. In this era of precision medicine, quality must be proven: to patients, treating physicians and of course, to the pathologist.

Pathologists need to have confidence that the data and slides they are working with are reliable, especially for results that come out of processes which for most pathologists are a bit of a black box. This modern kind of working is very different from the traditional microscopic evaluation of a slide, which is both tangible and can be directly assessed for quality. This gap was quickly recognised by many organizations and the result was, in addition to existing quality measures, the development of External Quality Assessment (EQA).

With the increased scope and importance of molecular pathology, the need for scientific foundation, harmonization and expansion of these EQA programs has become urgent. IQN Path fills this gap and brings together many organizers of EQA pathology programs. IQN Path, being an international organization, also forms a network of stakeholders, including professional pathology organizations, pharmaceutical industry and diagnostic companies. Even although IQN Path has been in operation a mere two years, in this report you will find several examples of its ongoing success!

It may be difficult to precisely define quality in pathology, but by showing that a test result is reliable is a very important start.

Sincerely,

Prof Han van Krieken
President,
IQN Path ASBL
A note from the Executive Director

It is with great pleasure that we publish this Annual Report for the second year of IQN Path. It is with the support and expertise of the IQN Path network and our membership and sponsors that we will take the mission of IQN Path forward in future years. It is a pleasure to work alongside such dedicated and enthusiastic professionals. We appreciate all your contributions, suggestions and hard work.

Thank you to all our members!

[Signature]

Jacqueline Hall
Executive Director, IQN Path
About IQN Path

IQN Path is an international multi-stakeholder group focused on improving the quality of clinical biomarker testing through best practice in External Quality Assessment (EQA). IQN Path is a not-for-profit membership organisation registered in Luxembourg.

About EQA

Clinical implementation of personalized medicine means that biomarkers and new technologies for their detection are increasingly being used in pathology. Accurate biomarker testing can assist in diagnosis and can modernize patient treatment with targeted therapies. To ensure optimum patient outcomes, it is necessary to employ rigorous quality management, using internationally recognized standards. EQA is therefore becoming increasingly recognized as a critical part of the process for promoting quality in tissue-based pathology, including liquid biopsy.
The 2017 Membership of IQN Path

EQA members 2017

IQN Path's membership is drawn from organizations and stakeholders invested in the quality implementation of biomarker testing in pathology. Our founding and current academic members are detailed below:
Corporate members 2017
IQN Path also has corporate sponsor members and activities that are supported by our corporate stakeholders. IQN Path would like to extend its appreciation to all sponsors of IQN Path activities:

**GOLD MEMBERS**

- Roche
- AMGEN
- horizon
- Thermo Scientific
- Novartis
- VISIO PHARM
- MERCK
- AstraZeneca
- Genentech

**SILVER MEMBERS**

- Dako
- illumina
- diatech pharmacogenetics
- PHILIPS

**BRONZE MEMBERS**

- HistoCyte laboratories
Aims of IQN Path

IQN Path aims to improve the quality, accuracy and accessibility of EQA in order to promote optimal patient care. These aims are implemented through:

**Expertise** peer discussion of key issues and establishment of best practice guidelines

**Awareness** lead policy development and promote knowledge of and access to EQA

**Education** training, workshops, conferences and research bringing our work to the public domain
Delivering our aims in 2017
2017 was a productive year for IQN Path. From working groups to journal publications, we continued to raise the profile of EQA, laboratory quality and of course, IQN Path.

Expertise: the IQN Path Working Groups

IQN Path is organised into working groups, within which we have projects focussed on specific topics deemed important by the group.

IQNPath Liquid Biopsy Group

Four EQA providers came together under IQN Path to address the plasma ctDNA testing challenges currently facing diagnostic laboratories: the Association Italiana di Oncologia Medica (AIOM), European Molecular Genetics Quality Network (EMQN), European Society of Pathology (ESP) EQA and the United Kingdom National External Quality Assessment Service (UK NEQAS) for Molecular Genetics. This project encompassed three main areas of work: 1) an initial survey of laboratories to assess the prevalence of testing methods used and the need for ctDNA EQA, 2) an EQA pilot for lung and colorectal cancer where reference materials were designed and distributed to 32 laboratories to gather initial data and test EQA design and feasibility and 3) a workshop for laboratories on ctDNA testing covering methods, applications and the main findings from the ctDNA EQA pilot.

cfDNA Laboratory Survey

An online survey for laboratories on the methods and current uses of cfDNA was conducted and the results were published in Virchows Archiv. The results of the survey demonstrated the interest in ctDNA testing, the intention of laboratories to adopt it for clinical testing and the need for appropriate EQA to support this.

Zandra C. Deans et al. Review of the implementation of plasma ctDNA testing on behalf of IQN Path ASBL: a perspective from an EQA providers’ survey. Virchows Archiv. December 2017, Volume 471, Issue 6, pp 809-813
cfDNA EQA Pilot
To assess the current standard of ctDNA testing and to assess the feasibility of implementing an EQA for ctDNA in general practice, a pilot EQA scheme was organized by four EQA providers under the umbrella of IQN Path. Thirty-two laboratories received five samples for epidermal-growth-factor receptor (EGFR) analysis and/or five samples for rat sarcoma viral oncogene (RAS) analysis. Samples were artificially manufactured ctDNA in real plasma and variants were spiked at two allelic frequencies of 1% and 5%. The reference samples were validated by five reference laboratories prior to sending. The results of the analysis have been written up and a publication entitled “International pilot External Quality Assessment scheme for analysis and reporting of circulating tumour DNA” has been submitted to a peer review journal and is currently under review. We hope to see this work published soon. Any news will be announced on the IQN Path website.

IQN Path cfDNA Workshop, Florence
On the 23rd June in Florence, Italy, IQN Path organized the first IQN Path workshop on cfDNA testing. The meeting had over 100 registrants and drew attendees from 23 different countries, demonstrating the importance and interest in the topic of quality of cfDNA testing. The one day workshop entitled, ‘From sample collection to clinical integration of the results – ensuring end to end quality’ was divided into educational sessions on different topics relating to the details of cfDNA testing. There was also a breakout session in the afternoon which involved delegate participation. See Appendix 2 for the workshop agenda.

In the educational session, in-depth technical topics ranged from blood drawing and collection tubes, cfDNA extraction methods, methodologies for cfDNA testing, current clinical applications, an introduction to quality processes and the importance of quality, and the initial results of the IQN Path pilot for cfDNA that had been organized by UK NEQAS Molecular Genetics, EMQN, ESP QA and AIOM under the umbrella of IQN Path.

There was also a series of talks from companies describing the new tools and technologies available in the field. Talks were given by Biocartis, Seracare, Qiagen, Horizon Diagnostics and ThermoFisher Scientific. The summary and outcomes of the ctDNA workshop discussion are currently being written up into a white paper.
We would once again like to thank the sponsors of the cfDNA programme and the supporters of the ctDNA workshop.

Amgen, AstraZeneca, Merck KGA, Sysmex Inostics, Boehringer Ingelheim, Roche, Thermo Fisher Scientific, Biocartis, Horizon Diagnostics, Seracare, and Qiagen.

Thank you to EMQN, UK NEQAS, AIOM and ESP QA for leading the project.
In 2013, before IQN Path was constituted, a small group of EQA providers came together to write a consensus document on the design of molecular pathology EQA, resulting in this article:

J. Han van Krieken ., Guideline on the requirements of external quality assessment programs in molecular pathology, *Virchow’s Archiv*, 2013, 462:27–37.

The article addressed topics such as: the organization of an EQA programme, criteria for a reference laboratory, requirements for EQA samples, numbers of samples for testing, scoring systems, reports and managing poor performance. During discussions in the Naples 2016 meeting, several EQA groups expressed interest in updating this document, to bring it up to date with today’s practices. The purpose of this new project to explore, discuss and harmonize practices between EQA providers and update our recommendations.

This group is actively working on the IQN Path PD-L1 digital education portal for EQA, to support quality of PD-L1 staining interpretation. This is to be an online self-assessment tool for pathologists and scientists to self-test and train on the interpretation of slide images. The pathologists and scientists will log-in, view and self-test on high quality reference material that is presented in a consistent manner and which will be scored by an expert committee of pathologists appointed by the participating EQA providers.

The portal will comprise digital slides stained with the four different FDA approved tests, namely 28-8, 22C3 (Agilent) and SP142 and SP263 (Roche). The portal will start with lung cancer cases with plans to extend to other diseases in the near future. CADQAS (a community interest company or CIC) based at the Poundbury Cancer Institute, UK is supporting the project on the technical aspects, including digital library scanning and the preparation and management of the digital platform software.

This combined slide resource will be made available by participating IQN Path member EQA providers, so that the self-assessment can be made available to pathologists through the EQA scheme in their region. In this collaboration we aim to help the EQA providers provide high quality materials for use in EQA and to harmonize activities between different groups, by working with the same reference materials and obtaining input from all the participating EQAs into the project design.
We would like to thank the sponsors of the PD-L1 project and also to thank CADQAS for their support in delivering the goals.

AstraZeneca, BMS, Merck KGaA, MSD, Genentech, Agilent, Roche

Thank you to Philips and CADQAS for providing technical support
Projects 2017
New project proposal submission process

In 2017, IQN Path established a new project submission process, so that EQA members creating a group to work on different challenges can submit their project for financial support (where available) and endorsement from IQN Path. Projects funded by IQN Path are subject to IQN Path policies.

Figure 2: Flow diagram of the grant application / project submissions process.

1. Identify project scope and EQA member lead
2. Complete the IQN Path project form and submit to IQN Path. This should include raised funds and/or requested funds.
3. Review and approval by IQN Path Board
4. Identify milestones, reporting criteria and sign project agreement
Projects approved in 2017

In the first year of establishing the project submission process, IQN Path received several applications, listed below.

**PD-L1 Educational Portal**
This project is currently in progress within the IHC/FISH working group (see above). The proposal was born from discussions at a previous working group meeting in Cologne 2016. The project was submitted to IQN Path by Keith Miller of UK NEQAS for ICC and ISH in February 2017, whereupon it was approved. The project is currently underway but is still seeking top-up funding, therefore any interested IQN Path corporate sponsor members are encouraged to make contact to discuss in more detail. The PD-L1 project is being supported by the PathXL software from Philips. Technical expertise, slide scanning and other assistance is being delivered by CADCAS, a community interest company registered at the Poundbury Cancer Centre, Dorset, UK.

**Update of the EQA molecular guidelines**
As a result of discussions in Naples 2016, and the group’s interest in updating the 2013 guidelines on molecular EQA (see above), a project submission with a request for funding by IQN Path was submitted to IQN Path and approved by the Board in 2017. The project is being led by Professor Els Dequeker of Leuven University in association with the ESP QA, and the work is currently under development in the Molecular EQA Working Group. A questionnaire has been distributed to EQA providers in order to identify current practices and variations. The initial results of the EQA provider survey will be presented in the 2018 Naples meeting. From this, the goal is to update the EQA guidelines published in 2013.

**Persistently poorly performing laboratories**
A second related project on the topic on the management of persistently poorly performing laboratories was submitted to IQN Path with a request for funding. This project is also led by Professor Els Dequeker of Leuven University and was approved by the IQN Path Board in 2017. This project will conduct a review within the EQA provider members of how persistently poorly performing laboratories are managed for biomarker testing in tissue-based EQAs. The review will take the form of a questionnaire and it is hoped that the results, which are expected in 2018, will lead to further projects that will improve the quality of laboratory testing.

**Tumour Mutation Burden**
A new proposal coordinated by Nicola Normanno of AIOM, Naples, was submitted to IQN Path at the end of 2017, for launch in 2018. The project is currently seeking funding and any interested IQN Path corporate sponsor members are encouraged to make contact to discuss in more detail. The main purpose of this project is to evaluate the appropriate design of EQA for Tumour Mutation Burden (TMB) testing. As different methods for TMB assessment are becoming available, IQN Path proposes a harmonization study to generate an index that allows the TMB scores of different tests to be mapped to one another. In addition, it is essential to validate control material for use in EQA schemes in TMB testing, so the project will culminate in a pilot phase of an EQA scheme for TMB, in order to test feasibility. It is hoped that the results will inform and define future recommendations for TMB assessment. The project will last around 16 months and will culminate in a workshop for laboratories, if funding permits.
Conferences, Presentations and Meetings
IQN Path Annual General Meeting and the Naples meeting

The second weekend in May saw the 6th EQA annual meeting hosted in Naples. Delegates included stakeholders and representatives of EQA providers from across the world, including pathologists, microbiologists, geneticists, quality managers, medical oncologists, representatives of the pharmaceutical companies, vendors of controls and standards for diagnostic methods and equipment and representation from the European Federation of Pharmaceutical Industries and Associations / European Biopharmaceutical Enterprises.

There was great collaborative input and discussion. Topics discussed included the quality of liquid biopsy testing, the challenges associated with the implementation of Next Generation Sequencing and PD-L1 assessment.

The 2nd Annual General Meeting of IQN Path ASBL was also incorporated into the event. The meeting was well attended by EQA providers, with participants from across the world. Several new research projects were suggested and IQN Path will seek to prioritise these and support the start of new project proposals. Appendix 1 contains the detailed programme of the Naples 2017 meeting.
IQN Path Booth at the European Congress of Pathology

IQN Path ASBL hosted its inaugural exhibition booth at the 29th European Congress of Pathology in Amsterdam in September 2017. We were delighted to meet so many IQN Path members as well as chat to representatives from laboratories seeking to join EQA schemes. After meeting us at the booth, we were delighted to have two new corporate members joining IQN Path for 2018.

The IQN Path Slide-based molecular methods (IHC) working group also took the opportunity to meet during the ECP.
Conferences where IQN Path activities were presented

Our members are busy spreading the word about IQN Path and disseminating the results and findings of our projects and work.

Here are just some of the 2017 events which were enhanced by IQN Path’s activities and data.

<table>
<thead>
<tr>
<th>Month</th>
<th>Events</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>Visiopharm User Group Meeting, Copenhagen</td>
</tr>
<tr>
<td>February</td>
<td>AZ PD-L1 Meeting, Alderley, Manchester; Roche PD-L1 workshop, Barcelona</td>
</tr>
<tr>
<td>April</td>
<td>AZ Ad Board, Heathrow; Pfizer AD Board, London; Roche Americas Cancer Meeting, Tucson</td>
</tr>
<tr>
<td>July</td>
<td>Roche China, Chengdu; 1st Annual European Congress on Lung Cancer, Barcelona</td>
</tr>
<tr>
<td>August</td>
<td>Roche Pharma, Rio</td>
</tr>
<tr>
<td>September</td>
<td>Poundbury workshop for SP263-CD; ESP Amsterdam: “Symposium ESP 2017” Solutions to the NSCLC Testing Challenge; ESMO Congress Madrid; Avellino “Il Carcinoa Polmonare non a Piccole Cellule”</td>
</tr>
<tr>
<td>October</td>
<td>Abbvie Ad Board on lung cancer; Abbvie Ad Board on Glioblastoma; Roche Diagnostics User Group Meeting in Nottingham; Roche Sales Meeting in Barcelona; Belagrado 3rd Congress of the Serbian Association for Cancer Research (SDIR) with International Participation ‘Challenges in anticancer research: translation of knowledge to improve diagnosis and treatment’; AIOM Roma XIX Congresso Nazionale</td>
</tr>
<tr>
<td>November</td>
<td>November NHS Bootcamp Meeting at the Royal Society of Medicine; AZ Lung cancer meeting in Rome; Reggio Emilia 2nd International Congress: Clinical Needs and Translational Research In Oncology; Creta: Congress on Clinical and Translational Oncology; IQN Path presentation at AMP Reference Materials forum, Salt Lake City, USA title: “Reference Materials for EQA: An EQA Providers Perspective from IQN Path”</td>
</tr>
<tr>
<td>December</td>
<td>ESMO, Switzerland</td>
</tr>
</tbody>
</table>
IQN Path promotes publications on quality in pathology

Following an approach from IQN Path ASBL, and with the support of the European Society of Pathology (ESP), we are proud to announce that *Virchows Archiv*, the official journal of the ESP, will be launching a special edition entitled 'Quality in Pathology'. The aim of this special edition is to create a channel for publications and articles related to quality issues and EQA in pathology. It can be challenging to find a suitable journal home for publishing data on quality research, therefore IQN Path seeks to promote ways to make data available and to encourage publications on the subject.
IQN Path Publications

IQN Path published several articles in 2017, listed below.

Next Generation Sequencing


Immunohistochemistry


Liquid Biopsy


Submitted article: ‘An international pilot External Quality Assessment scheme for analysis and reporting of circulating tumour DNA’. Look out for it in the coming months.


**Other publications by IQN Path**

Hall J, Walker E, Tristram C, Garratt J, Sheppard B; A Quality Undertaking-Connecting EQA and industry to ensure quality diagnostic testing. www.thepathologist.com ed. 1017; Oct 2017

Hall J. Laboratory administration Quality External quality assessment and proficiency testing: www.pathologyoutlines.com; Dec 2017
Financial Summary 2017
Financial Summary
2017

A summary of the financial position of IQN Path for 2017 valued in Euros.

Expenditure

Table 1. Expenditure in 2017 compared to the previous year

<table>
<thead>
<tr>
<th>MEMBERSHIP</th>
<th>2017</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corporate</td>
<td>192,227</td>
<td>168,023</td>
</tr>
<tr>
<td>Academic</td>
<td>53,000</td>
<td>12,000</td>
</tr>
<tr>
<td><strong>Total Membership Income</strong></td>
<td><strong>245,227</strong></td>
<td><strong>180,023</strong></td>
</tr>
<tr>
<td>Staff</td>
<td>98,967</td>
<td>94,728</td>
</tr>
<tr>
<td>Accounts and legal</td>
<td>20,575</td>
<td>8,132</td>
</tr>
<tr>
<td>Conferences</td>
<td>10,045</td>
<td>4,191</td>
</tr>
<tr>
<td>Advertising and PR</td>
<td>3,139</td>
<td></td>
</tr>
<tr>
<td>Travel (members and staff)</td>
<td>8,425</td>
<td>3,530</td>
</tr>
<tr>
<td>Website &amp; Publications</td>
<td>993</td>
<td>2,520</td>
</tr>
<tr>
<td>Software</td>
<td>1,646</td>
<td>874</td>
</tr>
<tr>
<td>Office Supplies</td>
<td>502</td>
<td>574</td>
</tr>
<tr>
<td>Subscriptions</td>
<td>365</td>
<td></td>
</tr>
<tr>
<td>VAT (cost)</td>
<td>12,440</td>
<td></td>
</tr>
<tr>
<td>Differences on Exchange</td>
<td></td>
<td>5,141</td>
</tr>
<tr>
<td><strong>Total Membership Expenditure</strong></td>
<td><strong>158,135</strong></td>
<td><strong>119,690</strong></td>
</tr>
</tbody>
</table>

Membership Surplus for the year

€ 87,092 € 60,333

IQN Path ASBL has a partial-VAT exemption, VAT costs shown here are the proportion of VAT which IQN Path must pay, incurred from the previous year.
**IQN Path project-based grants approved in 2017***

<table>
<thead>
<tr>
<th>PROJECT</th>
<th>LEAD INVESTIGATOR</th>
<th>AMOUNT</th>
<th>START DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Update of the EQA molecular guidelines</td>
<td>Els Dequeker, ESP QA</td>
<td>5000 EUR</td>
<td>July 2017</td>
</tr>
<tr>
<td>Methods for managing persistently poorly performing labs (survey)</td>
<td>Els Dequeker, ESP QA</td>
<td>5000 EUR</td>
<td>July 2017</td>
</tr>
</tbody>
</table>

*Funds may be paid in 2018

**Income**

**Project & Membership Income**

Figure 3. A pie chart illustrating the proportions of IQN Path income in 2017

![Pie chart showing proportions of IQN Path income in 2017]

- Project Income 30%
- Corporate Membership 55%
- Academic Membership 15%

**Growth in Membership Income**

During the year membership income has risen by 36% on 2016 income. Corporate membership was €192,227 representing a growth of 14% from the previous year. Academic membership has grown to €53,000.
Governance
IQN Path has now been in operation for two years. Our members subscribe to the principles and policies of IQN Path to promote transparency and harmonization. In order to maintain and promote these principles, IQN Path implements a governance structure and policies to support operations.

Overview of Governance

Figure 4. The governance structure of IQN Path ASBL
2018 sees the end of term of IQN Path’s Founding Board, which has nurtured and grown IQN Path during the set-up, foundation and first years of operation. IQN Path would like to thank the Founding Board members for all their support and efforts in bringing the organization to a strong position for future growth.

Going forward, IQN Path is establishing an election processes, under the oversight of the Independent Executive Board Nomination Committee (IBNC) committee. These documented processes are available in the IQN Path members area. Following recommendation from both the IBNC and the Founding Board, IQN Path has implemented a rotation system: two Board members will step down and their positions will be filled by two new candidates. The staggered change will help ensure continuity of IQN Path’s missions and objectives. If more than two candidates come forward for the two available seats, elections shall be held and the membership asked to vote.

IQN Path is now actively seeking for expressions of interest from within the EQA scheme membership, to fill the seats of Han Van Krieken and Sandi Deans. These positions will be effective after the AGM in May 2018.
Establishing the Independent Executive Board Nomination Committee (IBNC)

As part of the IQN Path statutes and IQN Path governance structure, IQN Path is required to establish an IBNC, which was constituted for the first time in 2017, in advance of the upcoming board elections.

The role of the committee is to assist in a governance capacity and to ensure effective functioning of the IQN Path Board. The key functions of the IBNC are anticipated to be:

- Establishment and oversight of the IQN Path Board election process
- Documentation of the process of appointments to the Executive Board
- Evaluation of performance concerns involving any Executive Board member
- The right to call an extraordinary General Meeting in case of any urgent governance matters

Composition of the IBNC

The IBNC will comprise three to five people who will serve for three years. Candidates are self-nominated and are drawn from the General Membership of IQN Path. This means that the committee can contain representatives of different membership categories as well as organizations affiliated with IQN Path, including partners and other external candidates. At least one full EQA member should be included. The IBNC chair position may only be held by a full EQA member. The IQN Path Executive Director will also attend the IBNC meetings.

The IBNC members appointed are:

Simon Patton (EMQN)  
Barbara Farscheim (EBE)  
Beth Sheppard (Roche)
IQN Path
Plans for 2018
IQN Path
Plans for 2018

The other IQN Path working groups will continue with their work:

- IHC – the IQN Path PD-L1 Educational Portal pilot and creating a fit-for-purpose EQA

- Liquid Biopsy - how to scale the cfDNA EQA and the publication of the 2017 cfDNA pilot and workshop guidance

- Molecular Pathology - publication of updated best practice guidelines for molecular EQA and the results from the survey of persistently poorly performing laboratories

New activities for the coming year include:

- The inception of a new working group on Tumour Molecular Burden (TMB), with the initial focus on the design of a suitable EQA

- The hosting of a workshop on the importance of reference materials for quality testing in cancer diagnostics

- Collaboration with the ESMO to develop a new one-and-a-half-day workshop on biomarkers for precision cancer therapy

These plans will be refined as the year progresses.

IQN Path welcomes new project proposals from the membership. Project proposals require submission to the Board for approval, using the IQN Path Project Form (available on website) and are subject to approval by the IQN Path Board.
**IQN Path strategy for the next 5 years**

The current IQN Path Board has developed a strategic plan for the next 5 years. Six key areas for further development have been outlined and will be developed in greater detail by the next IQN Path Board, ensuring continuity of the objectives of IQN Path between consecutive Board appointments.

We welcome feedback from the membership on building this strategy for the years to come.

*Figure 5. Key principles to be developed for the 5-year strategy of IQN Path*
Publications by EQA Members
As the importance of quality assured diagnostic testing becomes widely recognised, the field of EQA continues to grow.

We are delighted that several of our member groups are joining IQN Path in the publication of journal papers. There is no doubt that publication helps raise the profile of EQA as well as providing valuable insights into the current status of laboratory testing. We hope that this list encourages IQN Path members to continue to actively pursue journal publication. If there is any assistance IQN Path can offer to promote the publication of EQA data, get in touch.
Members in alphabetical order:

AIOM/SIAPEC


CAP


CICQ

EMQN

ESP QA


Gen&Tiss/ GFCO

NordiQC


RCPAQAP


**UK NEQAS**


http://www.phgfoundation.org/report/developing-effective-ctdna-testing-services-for-lung-cancer


Other publications of interest

QuIP®


Joint position paper of the Federal Association of German Pathologists and the German Society of Pathology for a centralized, possibly industry-based service provision in multigenetic analyzes in tumor diagnostics.


NIBSC


ISO Guidelines on pre-analytics due in 2018

During 2017, some IQN Path members have been involved in the preparation of ISO guidelines for in-vitro diagnostic examinations. ISO specifications for pre-examination processes for formalin-fixed and paraffin-embedded (FFPE) tissue will be published in 2018. We will keep the membership updated when these are released.
Appendix
Appendix 1: The 6th Meeting on External Quality Assessment in Molecular Pathology
FRIDAY, MAY 12

09.00 Welcome and Opening
  A. Bianchi, G. Botti, F. Cardillo, V. Fascione, C. Pinto, M. Trani

09.30 - 11.00 Joint ESMO-AIOM-ION Path session
  Cancer immunotherapy: from basics to clinical practice and sustainability
  Chairs: F. Cardillo, I. van Krieken, C. Pinto
  The aim of this session is to revisit the basic mechanisms of anti-tumor immune response, to highlight the rationale for the use of checkpoint inhibitors in cancer therapy and summarize the state of the art in the development of immunotherapy.

09.30 - 09.55 Immunocheckpoint inhibitors in cancer: rational and mechanism of action (J. Haanen)

09.55 - 10.20 Overview of clinical development of checkpoint inhibitors (J. Bennouna)

10.20 - 10.45 Sustainability of checkpoint inhibitors for the health system (L. Marotti)

10.45 - 11.00 Discussion

11.00 - 11.15 Coffee break

11.15 - 13.00 Challenges in the assessment of PD-L1
  Chairs: A. Marchetti, K. Miller, I. van Krieken
  The aim of this session is to discuss the challenges for the determination of PD-L1 and to present results of national and international initiatives and EQA schemes to improve PD-L1 assessment in clinical practice.

11.15 - 12.20 Harmonization and EQA programs for PD-L1 assessment in Europe. Experience from:
  - Italy (A. Marchetti)
  - Germany (P. Schirrmacher)
  - France (M.P. Cherfard)
  - CGC (L. Garrel)
  - The European Society of Pathology initiative (N.A. Marti)

12.00 - 12.20 EQA for PD-L1 IHC staining: is it a conundrum? (K. Miller)

12.20 - 13.00 Discussion

13.00 - 14.00 Lunch

14.00 - 15.30 Liquid biopsy in the clinic: current status and future developments
  Chairs: S. Deans, E. Dequeker, N. Normanno
  In this session the current status of development of liquid biopsies for clinical applications, the problems related to the standardization of the procedures and the preliminary results of EQA on liquid biopsy will be discussed.

14.00 - 14.20 The clinical lab pathway from blood collection to reporting (P. Pauwels)

14.20 - 14.40 Current and future clinical applications of liquid biopsy (M. Garassino)

14.40 - 15.00 Results of the joint pilot EQA scheme and next steps (S. Deans)

15.00 - 15.30 Discussion

15.30 - 17.00 New technologies come to the clinic
  Chairs: N. Normanno, S. Gori
  - Roche
  - Qiagen
  - Sysmex
  - Thermo Fisher
  - Biocartis
  - Illumina

17.00 - 17.15 Tea break

17.15 - 18.30 General Meeting ION Path (open to all ION Path members)

SATURDAY, MAY 13

09.00 - 11.30 Next generation sequencing technologies in the clinic
  Chairs: M. Dietel, N. Normanno, E. Rouleau
  In this session the current state of introduction of high throughput technologies in the clinic and the performance of these new technologies in EQA schemes will be discussed.

09.00 - 09.20 The position of the pharmaceutical industry EBE-EFPA on NGS in the clinic (C. Dollin)

09.20 - 09.40 The French initiative in molecular pathology (E. Rouleau)

09.40 - 10.00 The current status of NGS in clinical practice (M. Dietel)

10.00 - 10.20 The performance of NGS in EQA (K. Tack)

10.20 - 10.40 The results of the Italian colon and melanoma EQA scheme (F. Ferlito)

10.40 - 11.20 Discussion

11.20 - 11.40 Coffee break

11.40 - 13.00 Restricted meeting of ION Path academic members

13.00 - 14.00 Lunch
Appendix 2: Florence ctDNA workshop agenda

IQN Path

cDNA Workshop

From Sample collection to clinical integration of the results - ensuring quality end to end

Date: 23 June 2017
Venue: Hotel Albani Firenze, 12 Via Fiume, 50100 Florence, Italy

www.iqnpath.org

About IQN Path

IQN Path is an international, not-for-profit organisation that was started in November 2015. The mission of IQN Path is to improve the process of implementation of biomarker testing in pathology and ensure high quality testing is delivered to physicians for the benefit of patients. IQN Path provides a platform to improve the process of adoption of new biomarker testing in pathology into routine clinical testing.

As an association, IQN Path brings together key stakeholders involved in quality implementation of biomarker testing, including External Quality Assessment (EQA) providers, laboratories, other affiliated not-for-profit or academic organisations and standards agencies, pharmaceutical companies, diagnostics and technology companies who manufacture diagnostic kits and equipment and producers of reference materials used in EQA.

IQN Path conducts its activities through promoting expertise in EQA and EQA design, fostering awareness on the importance of quality of testing and supporting education. For more information please see www.iqnpath.org
Abstract

The use of ctDNA as a clinical diagnostic tool is becoming increasingly important with the continuing implementation of targeted therapies in solid tumours. Minimally-invasive molecular analysis by sampling of ctDNA has now been validated as a suitable alternative to tissue sampling. ctDNA is shed from tumours into the circulation in small amounts, and may be detected by highly sensitive molecular technologies. A research technology for many years, this technique has now been demonstrated to have clinical diagnostic utility for patients with solid tumours. Applications are currently focussed on the detection of primary mutations to inform treatment, and the subsequent detection of resistant mutations in longitudinal samples.

The programme for IQN Path ctDNA workshop will cover ctDNA sampling methods and logistics, highly sensitive molecular technologies for the analysis of ctDNA, the interpretation of results, and clinical reporting. The results of an IQN Path pilot EQA scheme for ctDNA will also be discussed, and an open discussion session will be held to further the development of best practice guidelines for laboratories already providing or intending to provide this service.

Agenda

**Session 1 Chair - Nicola Normanno**

<table>
<thead>
<tr>
<th>Time</th>
<th>Topic</th>
<th>Presenter</th>
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<tbody>
<tr>
<td>09.00</td>
<td>Welcome address</td>
<td>Jacqueline Hall (IQN Path)</td>
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<tr>
<td>09.10-09.40</td>
<td>Liquid biopsy: Definition and biology behind</td>
<td>Rachel Butler (Cardiff)</td>
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<td>09.40-10.00</td>
<td>Blood drawing: collection tubes, preparation and storage of plasma</td>
<td>Davina Gale (invited)</td>
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<td>10.00-10.20</td>
<td>ctDNA extraction methods</td>
<td>Ed Schuuring (Groningen)</td>
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<td>10.20-10.50</td>
<td>Refreshment Break</td>
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**Session 2 Chair - Marc Denis**

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<tr>
<th>Time</th>
<th>Topic</th>
<th>Presenter</th>
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<tbody>
<tr>
<td>10.50-11.10</td>
<td>Methodologies for ctDNA testing</td>
<td>Marc Denis (Nantes)</td>
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<tr>
<td>11.10-11.30</td>
<td>Current clinical applications of liquid biopsy</td>
<td>Nicola Normanno (Naples)</td>
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<tr>
<td>11.50-12.35</td>
<td>Sponsors session 1</td>
<td>Bart Jacobs</td>
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<td>• Idylla™: easy, rapid and accurate molecular testing for every patient (Biocarts)</td>
<td>Ruth Mayes</td>
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<td>• Seracare</td>
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<td>• Importance of ctDNA and Extraction for Liquid Biopsy Applications (Qiagen)</td>
<td>Martin Schlumpberger</td>
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<td>12.35-13.15</td>
<td>Lunch</td>
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**Session 3 Chair - Simon Patton**

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<tr>
<th>Time</th>
<th>Topic</th>
<th>Presenter</th>
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<tbody>
<tr>
<td>13.15-13.35</td>
<td>Why quality is important</td>
<td>Els Dequeker (Leuven)</td>
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<tr>
<td>13.35-13.55</td>
<td>Summary of IQN Path pilot EQA</td>
<td>Sandi Deans (Edinburgh)</td>
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<td>13.55-14.20</td>
<td>Sponsors session 2</td>
<td>Thomas Bittick</td>
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<td>• Advancing Liquid Biopsy with NGS Solutions (ThermoFisher Scientific)</td>
<td>Jonathan Frampton</td>
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<td>• Evaluation of the performance of circulating tumor DNA sequencing panels (Horizon)</td>
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<tr>
<td>14.20-14.40</td>
<td>Refreshment Break</td>
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**Session 4 Chairs - Sandi Deans and Els Dequeker**

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<th>Time</th>
<th>Topic</th>
<th>Presenter</th>
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<tbody>
<tr>
<td>14.40-17.00</td>
<td>Open discussion on standards for ctDNA plasma testing and reporting</td>
<td>All</td>
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<tr>
<td>17.00</td>
<td>Close of meeting</td>
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Vision

IQN Path is an international multi-stakeholder expert group focused on improving quality of clinical biomarker testing. IQN Path brings together organisations and key stakeholders involved in quality implementation of biomarker testing in pathology with the aim to deliver high quality patient care.

Mission

To improve the process of implementation of biomarker testing in pathology and ensure high quality testing is delivered to physicians for the benefit of patients. IQN Path conducts its activities through promoting expertise in EQA and EQA design, fostering awareness on the importance of quality of testing and supporting education. IQN Path is an international, not-for-profit organisation, registered in November 2015.

International Quality Network for Pathology ASBL (IQN Path ASBL)

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