

Update on the VTEC Network preparedness for molecular typing data collection

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Vision paper on the development of data bases for molecular testing of foodborne pathogens in view of outbreak preparedness.

1. Background

1.1. *Molecular testing*

Molecular typing or microbial DNA fingerprinting has developed rapidly in recent years. Many typing methods, like PCR techniques and sequencing, have become part of routine strain characterization in many laboratories. Molecular typing provides essential tools for different surveillance purposes, such as monitoring spread of clones and strains, early detection of dispersed (international) outbreaks, and prediction of epidemic potential.

PFGE SOPs produced by EURLs for STEC, *Listeria monocytogenes* and *Salmonella* describes all the details for the production, interpretation and curation of the PFGE profiles

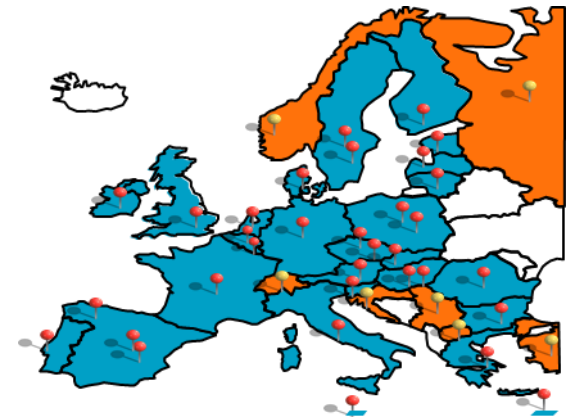
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The EURL-VTEC activities for the preparedness on molecular typing

- ✓ Proficiency tests (EQA) on PFGE (4 rounds in 2012-2015)

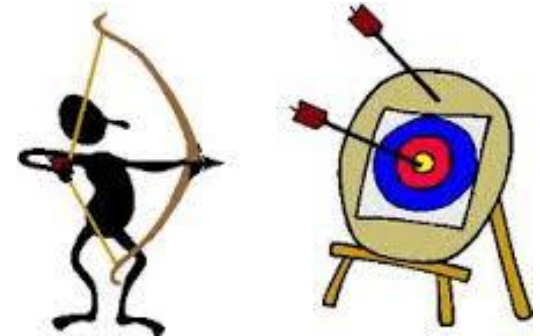
THE PT-PFGE5 STRAINS WERE SENT LAST WEEK 😊

- ✓ Training sessions on PFGE (2012-2016)
- ✓ Basic courses on BioNumerics software (2014-2016)



THE FINAL GOAL...

The upcoming database for non human PFGE profiles should contain high quality profiles



**KEEP
CALM
AND
CONTINUE
TESTING**

EQA ON PFGE: useful tool to assess the capability to produce the good quality profiles

The EURL-VTEC Proficiency testing activity on PFGE

1. PT-PFGE1 (with PT10, January-March 2013)

- 16 EU NRLs + Norway, Switzerland and Egypt
- 11 *E. coli* strains
- Conducted jointly with the ECDC-FWD network

2. PT-PFGE2 (with PT11, June-September 2013)

- 23 EU NRLs + Norway and Switzerland
- 6 *E. coli* strains

3. PT-PFGE3 (with PT13, April-June 2014)

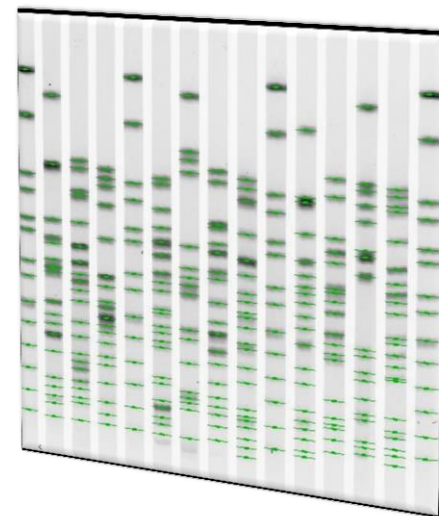
- 25 EU NRLs + Norway and Switzerland
- 7 *E. coli* strains

4. PT-PFGE4 (April-June 2015)

- 24 EU NRLs + Norway, Switzerland, Macedonia and Russia
- 10 *E. coli* strains
- Conducted jointly with the ECDC-FWD network

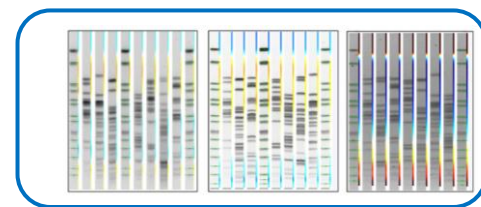
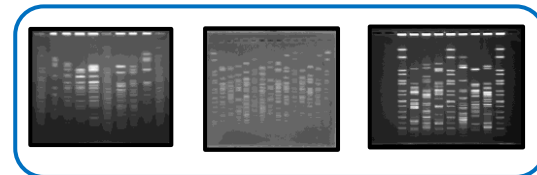
5. PT-PFGE5 (with PT18 ONGOING)

- 18 EU NRLs + Norway, Turkey and Russia
- 10 *E. coli* strains, in the framework of the PT18



EQA on molecular typing: evaluation NRL's Proficiency

- **PT-PFGE1 and PT-PFGE2:** PulseNet Procedure
PNQ01(visual assessment)
- **PT-PFGE3 and PT-PFGE4:** EFSA SOP for PFGE
profile interpretation
<http://www.efsa.europa.eu/en/supporting/doc/704e.pdf>
(BioNumerics assisted)
- **PT-PFGE5:** EFSA SOP

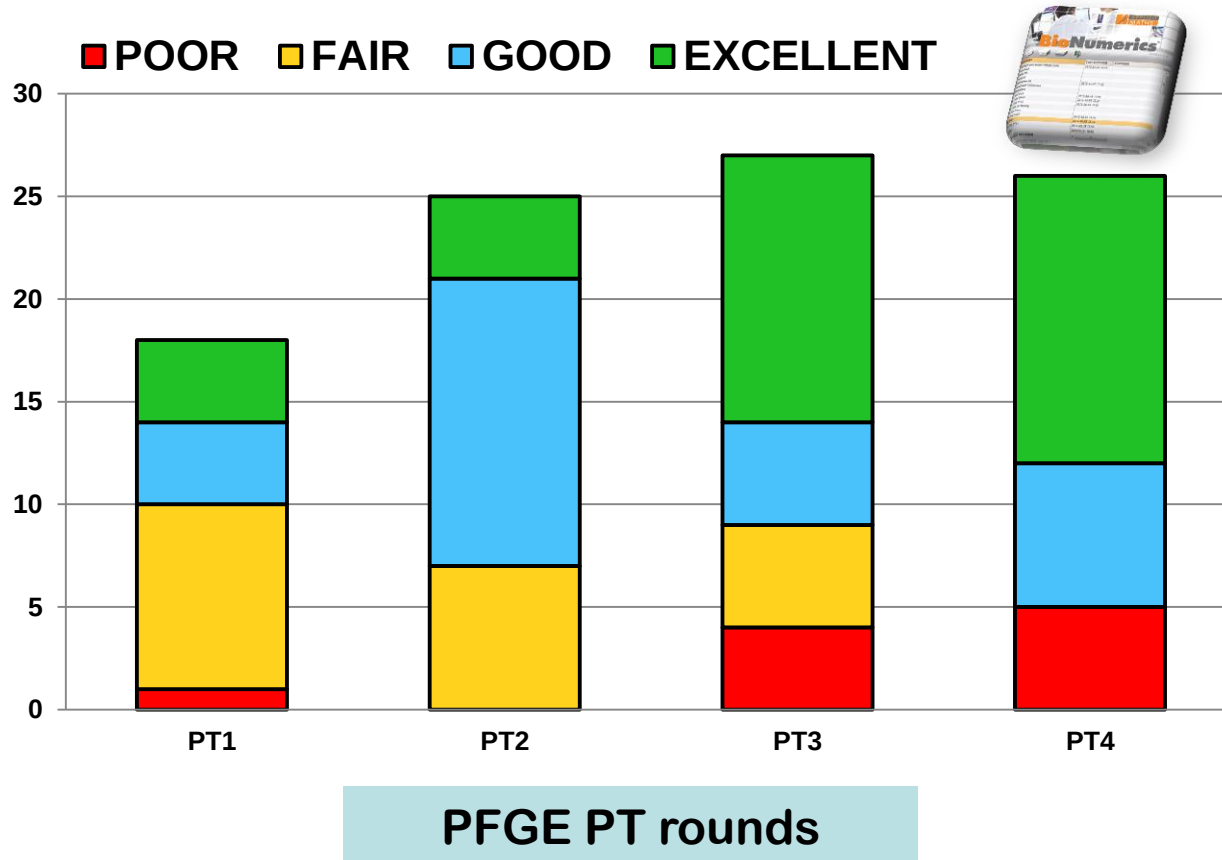


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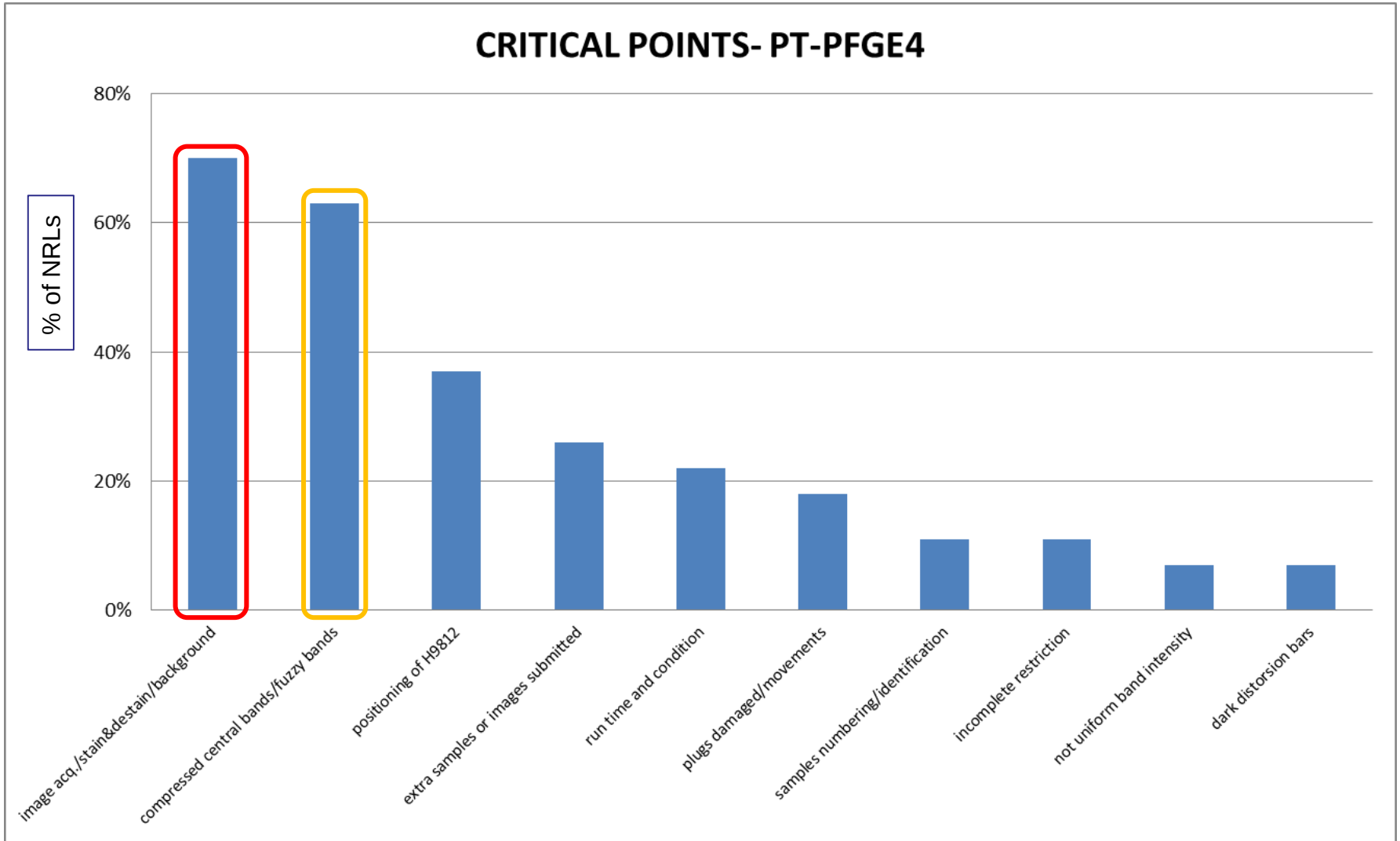
PFGE Proficiency testing (EQA): Trends

NRLs performance in producing PFGE profiles



CRITICAL POINTS

CRITICAL POINTS- PT-PFGE4



The EURL-VTEC training activities for molecular typing

- ✓ 9 Training sessions on PFGE (2012-2016)

(in total 22 colleagues: 18 NRLs – 14 MS + Norway + Algeria + 2 non NRLs)

- ✓ 2 Courses on BioNumerics software use

- 2014 edition @EURL-VTEC

- 10 participants + 2 observers from Nigeria and USA

- 2016 edition @EURL-LM-ANSES- joint with the three EURLs

- 12 participants from the three pathogens vet-networks



... the third edition will be organized by EURL-VTEC joint with all the three EURLs in the Spring/Summer 2017 the fourth is expected to be organized by EURL-Salmonella in the Netherland in 2018

The three EURLs - activities for molecular typing

Collaboration between the three EURLs (STEC, *Listeria monocytogenes* and *Salmonella*) has been established



The main objective is the **HARMONIZATION**



FIRST ACTIVITY:
COMMON BN COURSE (2016- 2017- 2018)

CONCLUSIONS - 1

- ✓ Importance of the participation in the PT after the training session

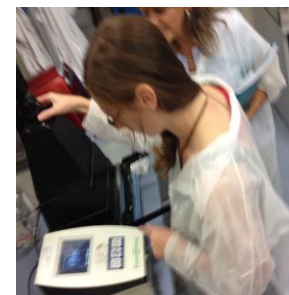
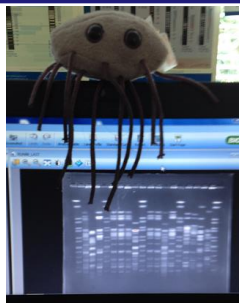


- ✓ EURL-VTEC provides assistance to the laboratories to improve their performance

CONCLUSIONS - 2

- ✓ Many labs continue to apply for the training on PFGE
- ✓ Proficiency test activity is a very useful instrument for the design of the SOPs used for the evaluation
- ✓ Half of the participants in the PT-PFGE4 has performed the BN analysis accomplishing an excellent/good result
- ✓ Collaboration between EURLS has been established to consolidate the preparedness of the vet-network on BN analysis (two more JOINT- BN courses have been planned)
- ✓ The identification of the critical points will be used by the EURL-VTEC to find the areas needing dedicated training sessions

PICTURES FROM TRAINING & EQA ACTIVITY



THANK YOU...