

TSE EURL EQA round 2019: Results 16th-18th September 2020

EURL PrP Immunohistochemistry
NRL Performance Technical EQA

Barbara Iulini & Cristina Casalone



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Istituto Zooprofilattico Sperimentale del Piemonte, Liguria e Valle d'Aosta – Turin
Istituto Superiore di Sanità - Rome

21 laboratories took part, including:

- Italian lab
- 2 non-EU

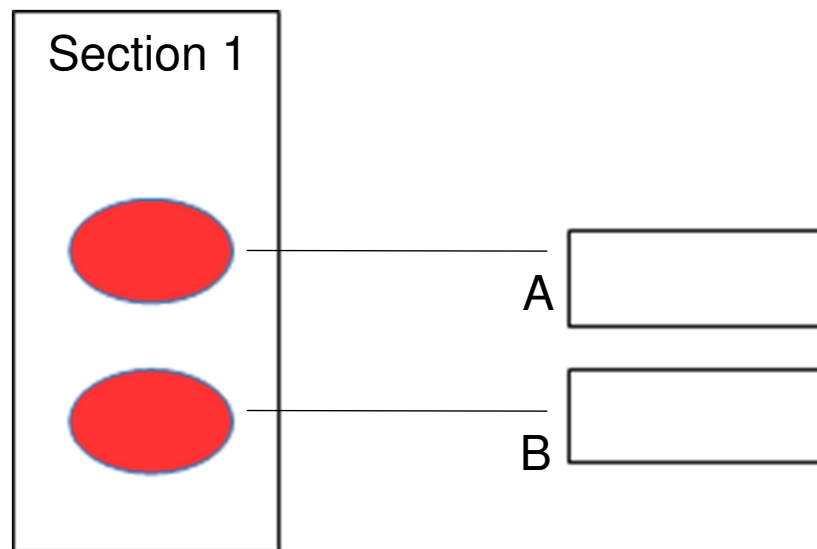


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PrP IHC EQA 2019

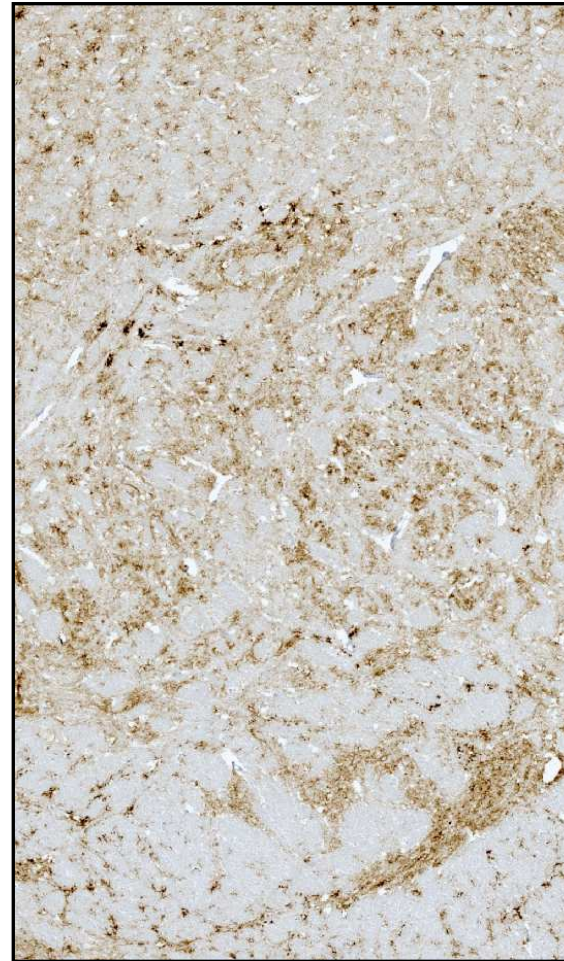
- Eight unstained sections on four labelled slides, which include both BSE and scrapie infected animals. Ovine slides include lymph node material.



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PrP IHC EQA 2019 - Expected Labelling



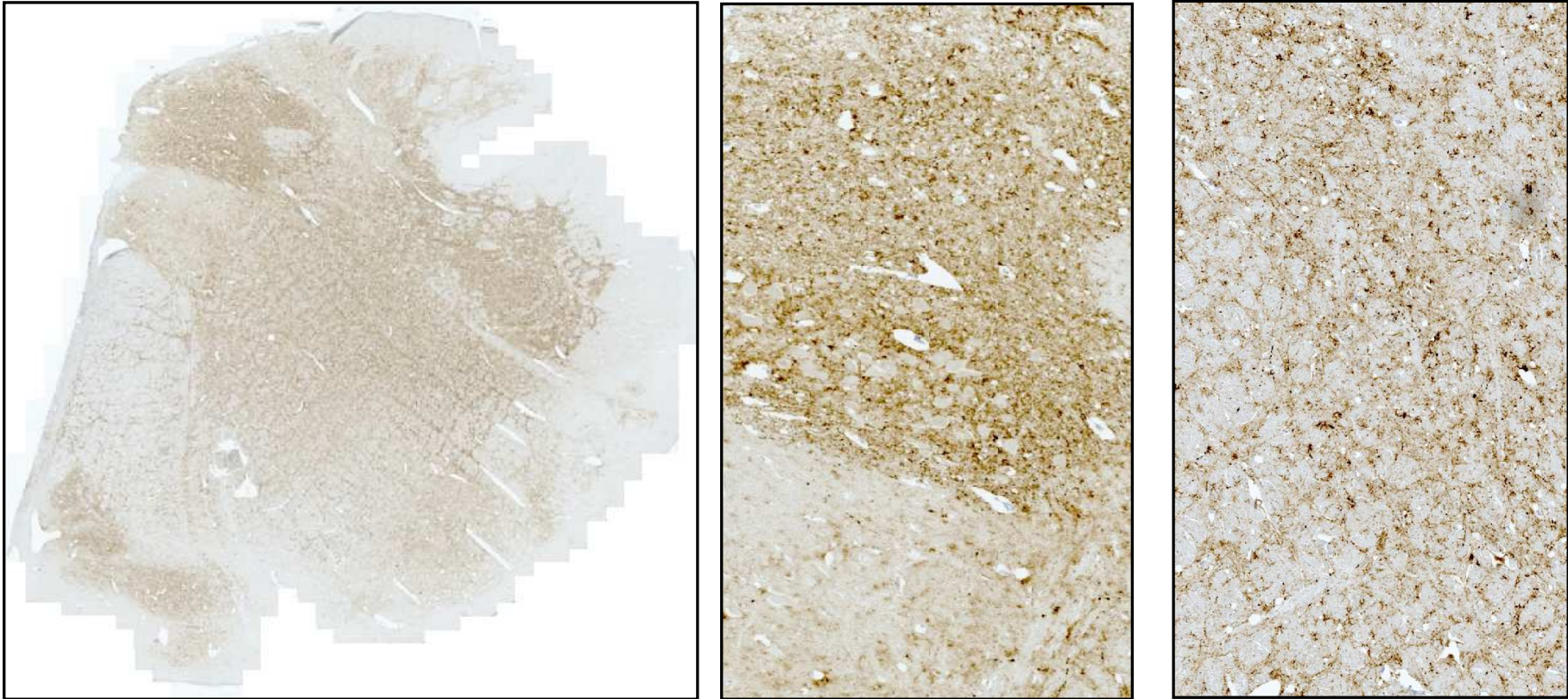
CLASSICAL SCRAPIE



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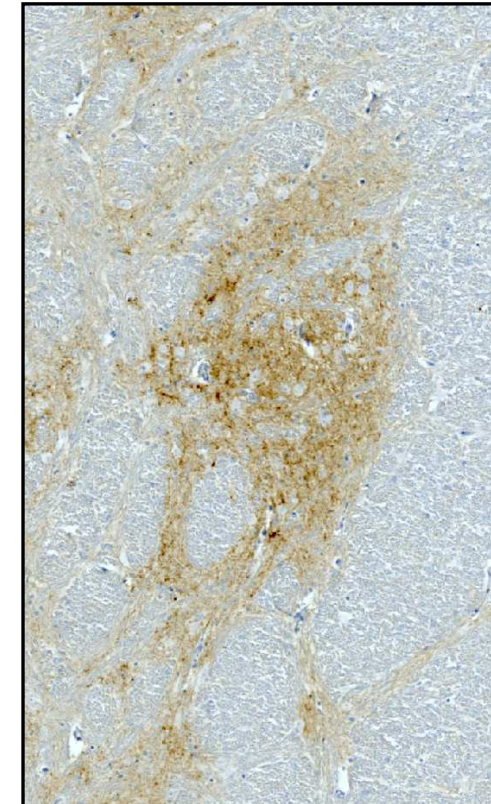
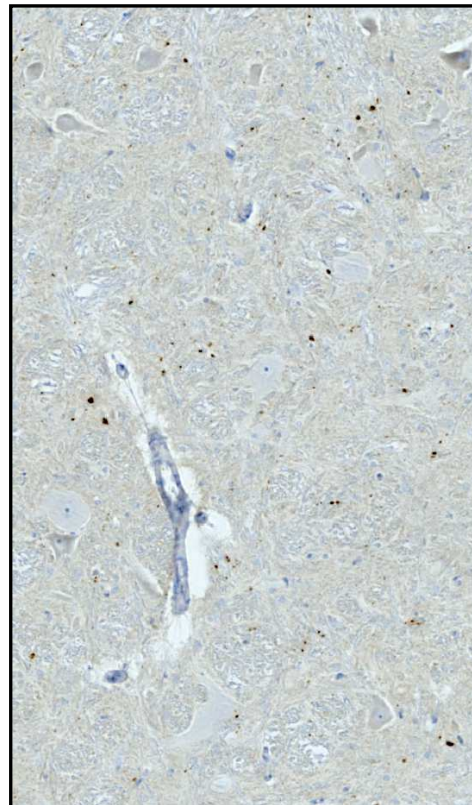


BSE POSITIVE



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PrP IHC EQA 2019 - Expected Labelling



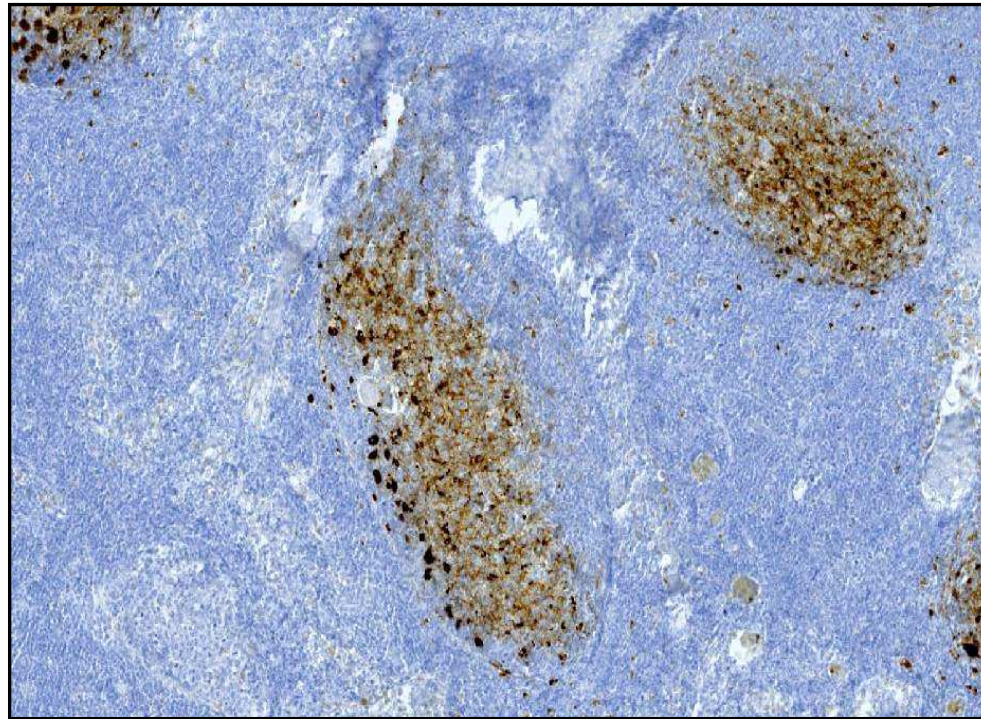
ATYPICAL SCRAPIE



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PrP IHC EQA 2019 - Expected Labelling



LYMPH NODE



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PrP IHC EQA 2019

Antibody preference for BSE cases

F99	F89	L42	2G11	12F10	6C2	R145	6H4	SAF84
5	1	1	1	3	2	6	1	1



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PrP IHC EQA 2019

Antibody preference for Scrapie cases

F99	F89	L42	2G11	6C2	R145
4	2	1	8	2	4



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PrP IHC Result - Antibody BSE cases

F99 x 5	F89, L42, 2G11, 6H4, SAF 84 x 5	12F10 x 3	6C2 x 2	R145 x 6
4 Pass	5 Pass	3 Pass	2 Pass	5 Pass
1 Scope for improvement significant less positivity than EURL				1 Fail on positive BSE section



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PrP IHC Result - Antibody Scrapie cases

F99 x 4	F89, 6C2 x 4	L42 x 1	2G11 x 8	R145 x 4
<p>3 Pass</p> <p>1 Scope for improvement significant less positivity on classical scrapie positive section than EURL</p>	<p>4 Pass</p>	<p>1 Pass</p>	<p>6 Pass</p> <p>2 Scope for improvement on atypical scrapie obex</p>	<p>2 Pass</p> <p>1 Scope for improvement on atypical scrapie obex</p> <p>1 Fail on all positive scrapie sections</p>



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PrP IHC Result – Detection Systems

Vector ABC Kits x 11	Vector ImmPRESS, Dako REAL, Ventana Ultraview Kit x 3	Dako EnVision Detection kit x 5	Dako REAL Detection System x 1	Ultra sensitive ABC Peroxidase Kit Thermo Scientific x 1
<p>9 Pass</p> <p>1 Scope for improvement on atypical scrapie obex</p> <p>1 Fail on all tissues</p>	<p>3 Pass</p>	<p>4 Pass</p> <p>1 scope for improvement on atypical scrapie obex</p>	<p>1 scope for improvement on both BSE and classical scrapie positive sections</p>	<p>1 Scope for improvement on atypical scrapie obex</p>



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PrP IHC EQA 2019

A second distribution of classical scrapie slides was carried out to solve problems of insufficient adhesion of the tissue to the slide.

During the second shipment we sent some additional slides to solve technical problems or on request of NRL participant.



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PrP IHC EQA 2019 - Results

21 labs took part Including - 1 Italy lab - 2 non-EU	BSE Medulla	Classical scrapie Medulla	Classical scrapie Lymph node	Atypical scrapie Cerebellum	Atypical scrapie Medulla
Pass	19	19	20	20	17
Improvement required	1	1	0	0	3
Fail	1	1	1	1	1



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PrP IHC EQA 2019 - Conclusion

- 16 Member states passed all categories compared with the EURL.
- 4 laboratories had **SI** in one or more categories to follow up themselves



3 laboratories had problems with Atypical scrapie and 1 lab had problems with classical scrapie and BSE

- 1 laboratory had failed the PT



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PrP IHC EQA 2019 - Conclusion

Major technical problems encountered were:

- low sensitivity
- aspecific signal
- excessive counterstaining
- loss of tissues

The four labs with **SI** have received additional tissue sections from EURL in order to make changes in the IHC method and improve sensitivity.



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PrP IHC EQA 2019 - Conclusion

This has been for us the first experience. We have made a great effort and we will try in the future to improve the criticalities found!



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PrP IHC EQA 2019

We are working to organize the next
PrP Immunohistochemistry
NRL Performance Technical EQA



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EURL Histopathology interpretation

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Materials and methods

- 15 slides (12 IHC, 3 H&E)
- Scanned
- Access to scanned images via the web
- Results entered in spreadsheet previously sent by the EURL and returned to it by mail



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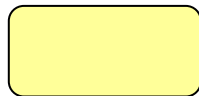
Interpretation rules



Correct and safe results



Incorrect results



Inconclusive or unsuitable



A scrapie case is correctly diagnosed as positive, but subsequently misclassified or not classified, “Pos-A” or “Pos-C”



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Case number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Test Type	H&E	H&E	IHC	IHC	IHC	IHC	IHC	IHC	IHC	IHC	IHC	IHC	IHC	H&E	IHC
Gold standard result	Pos	Pos	Neg	Pos-C	Neg	Pos-A	Pos	Pos-C	Neg	Pos-C	Pos-C	Pos-C	Pos-A	Neg	Neg
Species	Bov	Ov	Ov	Ov	Ov	Ov	Bov	Ov	Ov	Ov	Ov	Ov	Ov	Bov	Bov
IHC result of all H&E sections															
User ID															
078	Pos	Pos	Neg	Pos-C	Neg	Inc	Pos	Pos-C	Neg	Pos-C	Pos-C	Pos-C	Pos-A	Neg	Neg
168	Pos	Pos	Neg	Pos-C	Neg	Pos-A	Pos	Pos-C	Neg	Pos-C	Pos-C	Pos-C	Pos-A	Neg	Neg
172	Pos	Pos	Neg	Pos-C	Neg	Pos-C	Pos	Pos-C	Neg	Pos-C	Pos-C	Pos-A	Pos-A	Neg	Neg
184	Pos	Pos	Neg	Pos-C	Neg	Pos-A	Pos	Pos-C	Neg	Pos-C	Pos-C	Pos-C	Pos-A	Uns	Neg
227	Inc	Pos	Neg	Pos-C	Neg	Inc	Pos	Inc	Neg	Pos-C	Pos-A	Pos-A	Pos-A	Uns	Neg
232	Pos	Pos	Neg	Pos-C	Neg	Pos-C	Pos	Pos-C	Neg	Pos-A	Pos-A	Pos-A	Pos-A	Uns	Neg
261	Pos	Pos	Neg	Pos-C	Neg	Pos-A	Pos	Pos-C	Neg	Pos-C	Pos-C	Pos-C	Pos-A	Neg	Neg
288	Pos	Pos	Neg	Pos-C	Neg	Pos-A	Pos	Pos-C	Neg	Pos-C	Pos-C	Pos-C	Pos-A	Uns	Neg
307	Pos	Pos	Neg	Pos-C	Inc	Inc	Pos	Pos-A	Neg	Pos-C	Pos-C	Pos-A	Pos-A	Inc	Neg
346	Pos	Inc	Neg	Pos-C	Neg	Pos-A	Pos	Pos-C	Neg	Pos-C	Pos-C	Pos-C	Pos-C	Uns	Inc
393	Pos	Pos	Neg	Pos-C	Neg	Inc	Pos	Pos-C	Neg	Pos-C	Pos-C	Pos-C	Pos-A	Uns	Neg
403	Pos	Pos	Neg	Pos-C	Neg	Pos-A	Pos	Pos-C	Neg	Pos-C	Pos-C	Pos-C	Pos-A	Inc	Neg
423	Pos	Pos	Neg	Pos-C	Neg	Inc	Pos	Pos-C	Neg	Pos-C	Pos-C	Pos-C	Pos-A	Neg	Neg
494	Pos	Pos	Neg	Pos-C	Neg	Inc	Pos	Pos-C	Uns	Pos-C	Pos-C	Pos-C	Inc	Uns	Inc
530	Inc	Pos	Neg	Pos-C	Neg	Pos-A	Pos	Pos-C	Neg	Pos-C	Pos-C	Pos-C	Pos-A	Uns	Neg
546	Pos	Pos	Neg	Pos-C	Neg	Inc	Pos	Pos-C	Uns	Pos-C	Pos-C	Pos-C	Pos-A	Uns	Neg
547	Pos	Pos	Neg	Pos-C	Neg	Pos-A	Pos	Pos-C	Neg	Pos-C	Pos-C	Pos-C	Pos-A	Neg	Neg
627	Pos	Pos	Inc	Pos-C	Neg	Pos-A	Pos	Pos-C	Neg	Pos-C	Pos-C	Pos-C	Pos-A	Neg	Neg
663	Pos	Pos	Neg	Pos-C	Neg	Inc	Pos	Pos-C	Uns	Pos-C	Pos-C	Pos-C	Pos-A	Uns	Neg
668	Pos	Pos	Neg	Pos-C	Neg	Inc	Pos	Pos-C	Neg	Pos-C	Pos-C	Pos-A	Pos-A	Neg	Neg
683	Pos	Pos	Neg	Pos-C	Inc	Inc	Pos	Pos-A	Neg	Pos-C	Pos-C	Pos-A	Pos-A	Inc	Neg
685	Inc	Pos	Neg	Pos-C	Neg	Pos-A	Pos	Pos-C	Neg	Pos-C	Pos-C	Pos-C	Pos-A	Uns	Neg
710	Pos	Inc	Neg	Pos-C	Neg	Inc	Pos	Pos-C	Neg	Pos-C	Inc	Pos-C	Inc	Neg	Neg
726	Pos	Pos	Neg	Pos-C	Neg	Pos-C	Pos	Pos-C	Inc	Pos-C	Pos-C	Pos-C	Pos-A	Neg	Neg
729	Inc	Pos	Inc	Pos-C	Inc	Inc	Pos	Pos-C	Neg	Pos-C	Pos-C	Pos-C	Pos-A	Uns	Inc
743	No answer	No answer	Inc	Pos-C	Inc	Pos-A	Pos	Pos-C	Neg	Pos-C	Pos-C	Pos-A	Pos-A	Neg	Pos
786	Pos	Pos	Neg	Pos-C	Neg	Pos-A	Pos	Pos-C	Neg	Pos-C	Pos-C	Pos-C	Pos-A	Neg	Neg
808	Pos	Pos	Inc	Pos-C	Inc	Pos-A	Pos	Pos-C	Neg	Pos-C	Pos-C	Pos-C	Pos-C	Neg	Neg
822	Inc	Pos	Neg	Pos-C	Neg	Pos-C	Pos	Pos-C	Neg	Pos-C	Pos-C	Inc	Pos-A	Uns	Neg
912	Pos	Pos	Neg	Pos-C	Neg	Uns	Pos	Pos-C	Neg	Pos-C	Pos-C	Pos-C	Pos-A	Neg	Neg
924	Inc	Pos	Neg	Pos-C	Neg	Inc	Pos	Pos-C	Neg	Pos-C	Pos-C	Pos-C	Pos-A	Neg	Inc
962	Uns	Pos	Neg	Pos-C	Neg	Pos-A	Pos	Pos-C	Neg	Pos-C	Pos-C	Pos-C	Pos-A	Uns	Neg



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Histopathology interpretation



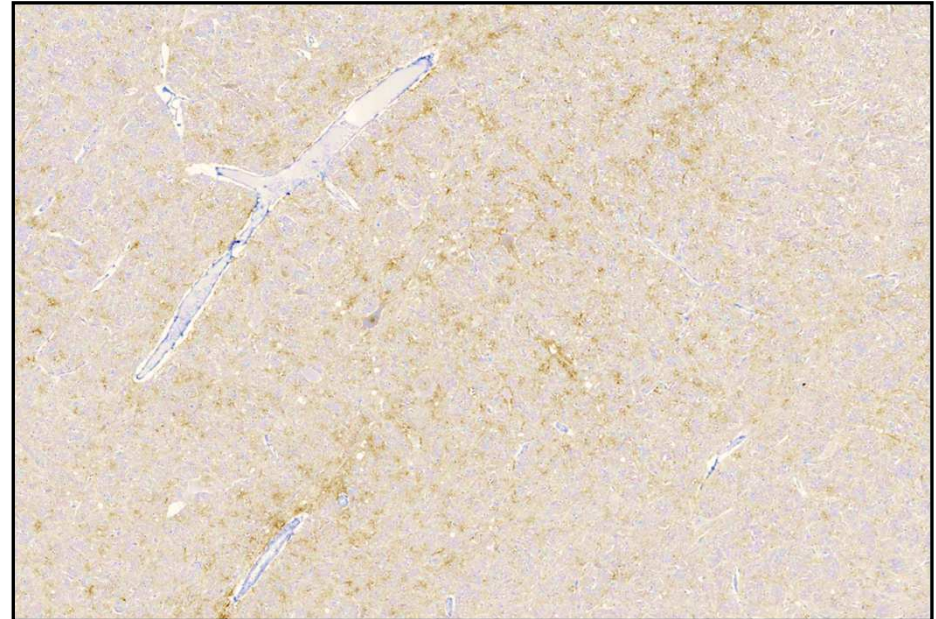
TSE O6 POS-A



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Histopathology interpretation



TSE O8 POS-C



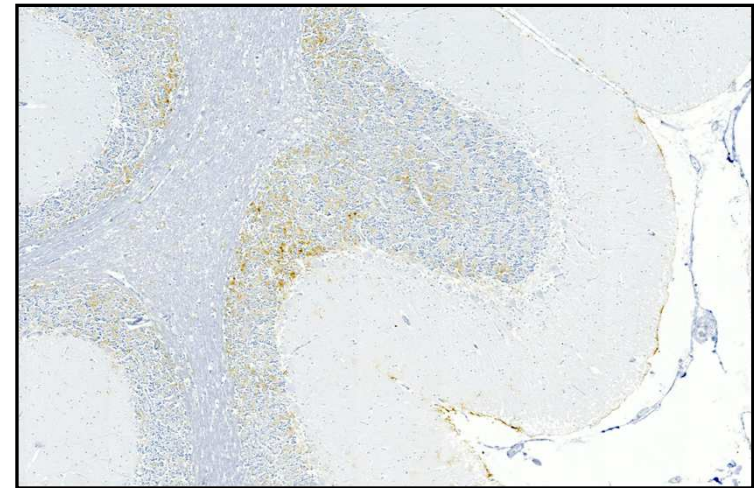
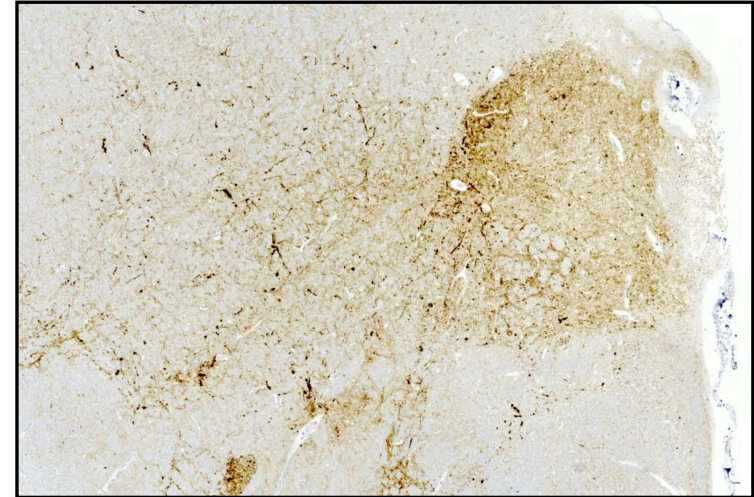
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Histopathology interpretation



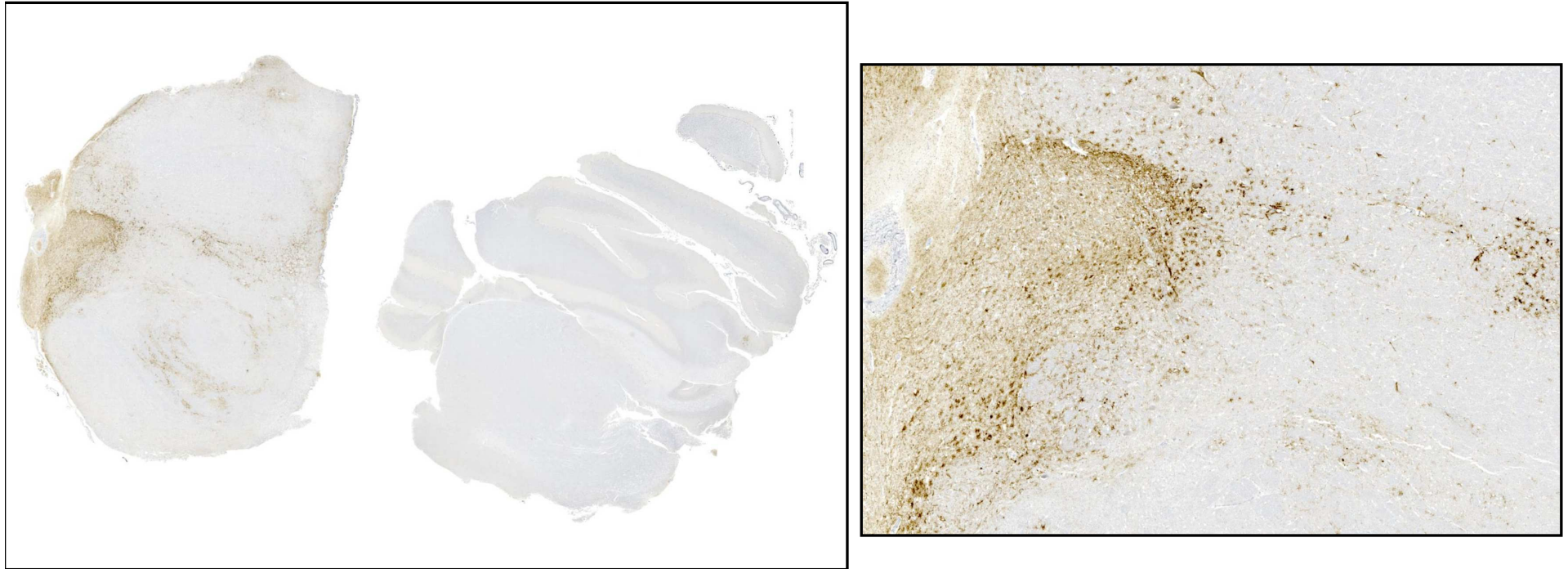
TSE 10 POS-C



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Histopathology interpretation



TSE 11 POS-C



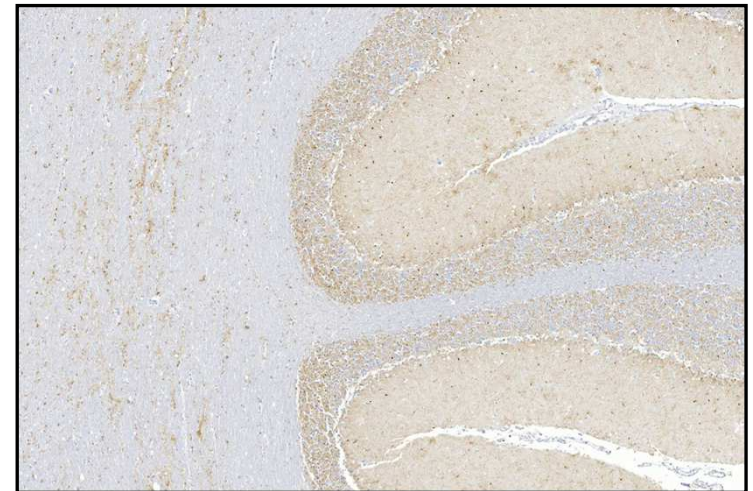
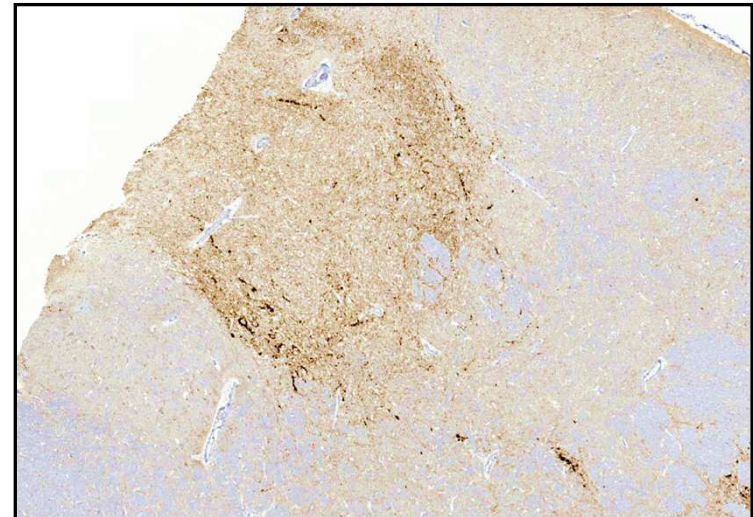
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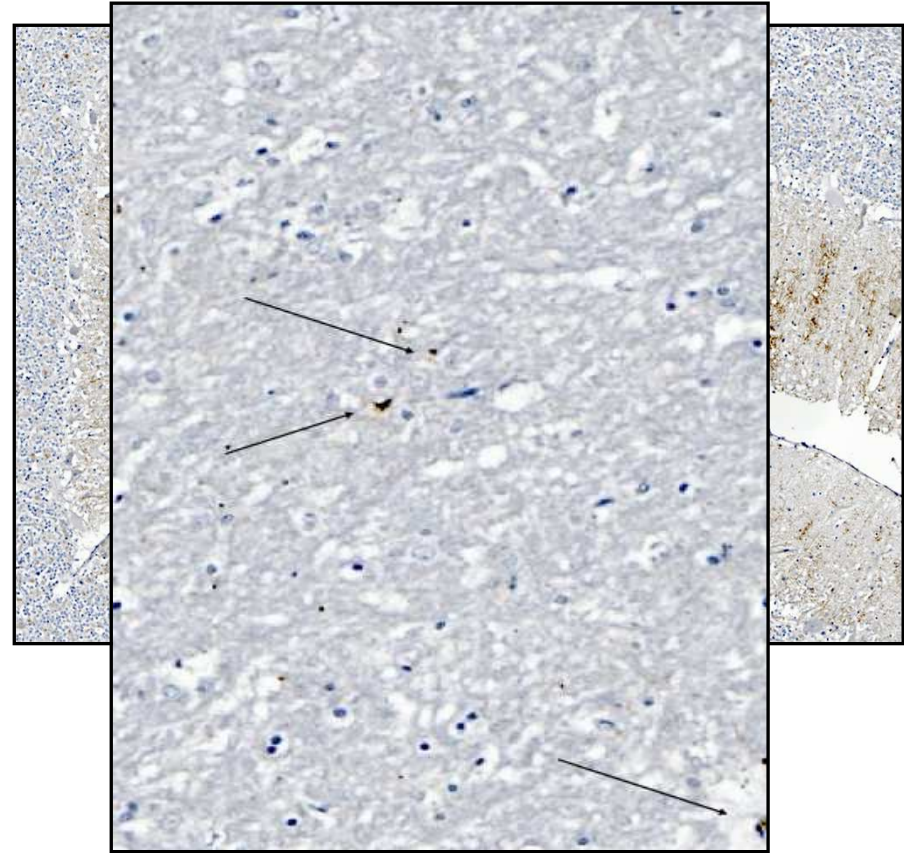
TSE 12 POS-C



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Histopathology interpretation



TSE 13 POS-A



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Histopathology interpretation - Conclusion

The EURL Histopathology interpretation has achieved good results.

There were overall no serious errors; only one reader had difficulties and therefore we are organizing an internship in our laboratories. Some readers have had difficulty distinguishing between classical and atypical scrapie perhaps because in some cases there was only obex or cerebellum



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next Histopathology
interpretation



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THANK YOU FOR YOUR ATTENTION

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