European Union Reference Laboratory for Rabies

WORK PROGRAMME 2013

I. Legal duties

The functions and duties of the European Union Reference laboratory (EURL) for rabies are described in the Commission Regulation (EC) No 737/2008 designating the EURL for crustacean diseases, rabies and bovine tuberculosis, laying down additional responsibilities and tasks for the EURL for rabies and bovine tuberculosis and amending Annex VII to Regulation (EC) No 882/2004 of the European Parliament and of the Council.

II. Objectives for the period January - December 2013

Activity 1: Technical support

Sub Activity 1.1:
Technical support: producing, storing and supplying biological materials and virus collection (multi-annual)

The biological materials that will be available for rabies diagnosis to the NRLs are:

- Polyclonal conjugates (1 vial per laboratory);
- Positive controls infected with genotypes 1, 4, 5, 6, 7 (available in the laboratory and subject to the consent of the owner of the strain) and negative controls for rabies diagnosis and for typing;
- Lyophilised preparations of fixed reference viruses (CVS 11 for *in vitro* tests and CVS 27 for *in vivo* tests).

The biological materials and facilities that will be available for follow-up of oral vaccination campaigns are:

- CD-ROM describing the operating procedure for determining tetracycline uptake;
- Fox teeth samples (positive and negative controls for determining tetracycline uptake).

Other technical support available to the NRLs:

- Experimental station capacities with mice, cats, dogs, foxes and raccoon dogs: support to laboratories willing to obtain strains of certain rabies viruses produced on animals.

Sub Activity 1.2:
Technical support: confirmatory tests for diagnosis and typing (multiannual)

The EURL will receive, examine and report on samples submitted by EU Member States and type strains from NRLs upon request. FTA® papers will be offered to NRLs to simplify and reduce the cost of shipping samples.

Sub Activity 1.3:
Technical support: scientific assistance (multiannual)

The EURL will provide full assistance to the NRLs concerning their requests as regards laboratory techniques related to rabies diagnosis, typing and follow-up of oral vaccination campaigns.
The laboratory will maintain its technical expertise by keeping abreast of technical developments, quality assurance system, laboratory security and safety, statistical analysis and bio-informatics necessary to maintain and update its competences.

Activity 2: Training activities

Sub Activity 2.1: Providing training to laboratories and possibly visiting them (multi-annual)

The Lyssavirus Unit of the laboratory is headed by Dr Florence Cliquet. The Unit is composed of 4 teams represented by 16 agents. Each team is headed by an experienced scientist who can provide expertise, scientific and technical support under the rabies EU-RL mandate in accordance with their specialty (diagnosis, molecular biology, virology and bait titration and epidemiology)
Upon NRL requests, the EURL will organise on-site training sessions on

- rabies diagnosis,
- typing, virus isolates
- virus titration and
- biomarker determination.

Activity 3: Inter-laboratory tests and data collection

Sub Activity 3.1: Inter-laboratory tests to evaluate the recommended rabies diagnostic tests (FAT and RTCIT) *(annual)*

An inter-laboratory test on the fluorescent antibody test (FAT), rabies tissue culture inoculation test will be conducted in 2013.
The different steps of the trials are the followings:

- Contacting all European laboratories (and possibly some from third countries after consultation and agreement with the EC) to establish a list of interested laboratories;

- Producing positive and negative reference materials (ten new batches will be produced for the need of the trial. A minimum of one month is necessary to produce and validate a new batch of virus *in vivo*);
- Testing the constituted panel;
- Distributing a panel of characterised samples for inter-laboratory comparison and validation;
- Interpreting all results of participating laboratories, then writing and dispatching a synthesis report.

Sub Activity 3.2: Inter-laboratory tests to evaluate molecular biology techniques (RT-PCR and Real Time)

An inter-laboratory test on the molecular biology techniques (RT-PCR, real time PCR) will be conducted in 2013.
The different steps of the trials are the followings:

- Contacting all European laboratories (and possibly some from third countries after consultation and agreement with the EC) to establish a list of interested laboratories;
- Producing positive and negative reference materials (new batches will be produced for the need of the trial. A minimum of one month is necessary to produce and validate a new batch of virus *in vivo*);
- Testing the constituted panel;
- Distributing a panel of characterised samples for inter-laboratory comparison and validation;
- Interpreting all results of participating laboratories, then writing and dispatching a synthesis report.

Sub Activity 3.3: Collecting data and information on the methods of rabies diagnosis used by laboratories for molecular biology techniques

The procedures used by Member States for molecular biology techniques (RT-PCR, Real Time RT-PCR) will be collected via questionnaires on the techniques employed. Each step of the protocols will be analysed for all laboratories and compared to the OIE or/and WHO reference tests. A report will be written up with a synthesis for all procedures; special attention will be given to technical points that are different or adapted from the existing and standardised reference tests.

On the basis of the inter-laboratory test results (3.1) and the synthesis of procedures used in Member States (4.1), a guide describing the main important points to consider in each step of the RT-PCR and Real Time procedures will be included in the inter-laboratory report. The objective of this guide is to obtain, as far as necessary, the standardisation of these methods within Europe.

Sub Activity 3.4: Collecting data on tests carried out in the EC (annual)

The EURL will request an annual report from each NRL. This will help to evaluate the number of tests performed in EU Member States for diagnosis, typing, virus titration, tetracycline detection, age determination and serology.

Activity 4: Meetings and workshop

Sub-activity 4.1: Organising an annual meeting for NRLs (annual)

On an annual basis, the EURL for rabies organised a workshop for gathering all National Reference Laboratories for rabies. The meeting is the opportunity to share information on rabies actualities and on the work that has been carried out during the year. Participants can be invited to deliver a presentation especially for Participants from countries where rabies still occurs. In 2013, the workshop will focus on a the reference technique for rabies diagnosis using cell culture and on the harmonisation of the molecular biology methods for rabies diagnosis.

Sub-activity 4.2: Keeping abreast of development in surveillance, epidemiology and prevention of rabies throughout the world *(multi-annual)*

The EURL will attend and participate in meetings, workshops and conferences in epidemiology and virology in regards to rabies (with prior Commission' agreement) and will also provide the European Commission with scientific advice and technical assistance at his request.

Activity 5: Website and strain database management

Sub-activity 5.1: Website management *(multi-annual)*

An Internet website on the EURL's activities went online in 2010. The website is hosted at http://www.ansespro.fr/eurl-rabies and allows consultation of EURL reports, including the work programmes and technical reports. Each NRL has received a login and password.
The EURL website presenting the EURL's aptitudes and activities, a list of the NRLs, news of the laboratory network and agenda of EURL activities will be updated regularly.

Sub-activity 5.2: Rabies Strain database deployment *(multi-annual)*

The EURL collects data from NRLs to be implemented in the genomic database of rabies strains isolated within the European Union. Strain identification form has been proposed add adopted during the workshop and is dedicated to be use by all NRLs to register rabies European strains in the database. To date, the EURL has received 84 strain forms from Latvian NRL and 51 forms from Estonian NRL.

The EURL will maintain and enlarge the genomic database of rabies strains isolated within the European Union. The objective is to overcome the lack of epidemiological information regarding rabies strains referenced in the main public sequence databases.

Activity 6: Research Programmes

Sub-activity 6.1: Molecular epidemiology of rabies in Baltic countries:

The EURL will carry out the collaboration with NRLs from Baltic countries to study the phylogeny of rabies in Baltic countries.

Sub-activity 6.2: Comparison of different Real Time PCR methods

The EURL will perform the comparison of the Real Time RT-qPCR using one step and two steps RT-PCR kits on several species of rabies virus held by the EURL. The "in-house" methods will be finally compared to commercially available kits for the determination of the analytical sensitivity (LOD) and performance of tests.

Sub-activity 6.3: Scientific monitoring and general scientific production

The EURL will perform constant monitoring of rabies scientific literature for keeping abreast of development in surveillance, epidemiology and prevention of rabies throughout the world. General scientific production and reviewing of manuscript related to EURL activities will be performed at request.