

FINAL RESUME ON THE RESEARCH UNIT:
Equine Biomechanics and Locomotor Disorders
(BPLC)

UNDER THE SUPERVISION OF THE
FOLLOWING INSTITUTIONS AND
RESEARCH BODIES:

École Nationale Vétérinaire d'Alfort - ENVA
Institut National de la Recherche Agronomique -
INRA

EVALUATION CAMPAIGN 2018-2019
GROUP E



In the name of Hcéres¹:

Michel Cosnard, President

In the name of the experts committee²:

Göran Dalin, Chairman of the committee

Under the decree No.2014-1365 dated 14 November 2014,

¹ The president of Hcéres "countersigns the evaluation reports set up by the experts committees and signed by their chairman." (Article 8, paragraph 5);

² The evaluation reports "are signed by the chairman of the experts committee". (Article 11, paragraph 2).

Tables in this document were filled with data provided by laboratories and supervising bodies in the unit's application and in the Excel files "Données du contrat en cours" and "Données du prochain contrat".

UNIT PRESENTATION

Unit name:	Equine Biomechanics and Locomotor Disorders
Unit acronym:	BPLC
Requested label:	UMR
Application type:	Renewal
Current number:	957
Head of the unit (2018-2019):	Ms Nathalie CREVIER-DENOIX
Project leader (2020-2024):	Ms Nathalie CREVIER-DENOIX
Number of teams and/or themes:	2

EXPERTS COMMITTEE MEMBERS

Chair:	Mr Göran DALIN, Faculty of Veterinary Medicine and Animal Science, Swedish University of Agricultural Sciences, Sweden
	Mr Khalil BEN MANSOUR, Université de technologie de Compiègne (supporting personnel)
	Mr Jean-Luc CADORE, VetAgro Sup, Campus vétérinaire Marcy L'étoile (representative of CNECA)
	Ms Marta PRADES ROBLES, Facultat de Veterinaria, Universidad Autónoma de Barcelona, Spain

HCÉRES REPRESENTATIVE

Mr Jean-François HOCQUETTE

REPRESENTATIVES OF SUPERVISING INSTITUTIONS AND BODIES

Mr Renaud TISSIER, École Nationale Vétérinaire d'Alfort - ENVA
Ms Muriel VAYSSIER-TAUSSAT, Inra

INTRODUCTION

HISTORY AND GEOGRAPHICAL LOCATION OF THE UNIT

The Research Unit "Biomécanique et Pathologie Locomotrice du Cheval", BPLC [Equine Biomechanics and Locomotor Disorders] was created in 1991 at the Ecole nationale vétérinaire d'Alfort (EnvA) in Paris, first as a research group « Biomécanique du Cheval » (Equine Biomechanics) associated to the "Institut National de la Recherche Agronomique" (INRA; National Institute for Agronomic Research).

In 1999, BPLC was recognised as a joint research unit INRA-EnvA, UMR 957 BPLC. The same year, when the CIRALE ("Centre d'Imagerie et de Recherche sur les Affections Locomotrices Equines"; *Center for Imaging and Research on Equine Locomotor Conditions*) was established, one part of the unit was relocated to Goustranville (Calvados, Normandy).

For twenty years now, the research activities of the BPLC unit have taken place at both sites (Maisons-Alfort and Goustranville), where the two teams of the unit are based:

- the **IPOA team**: Imagerie et pathologie ostéo-articulaires (*Bone and Joint Imaging and Disorders*), based in Goustranville;
- the **BAT team**: Biomécanique articulaire et tendineuse (*Joint and Tendon Biomechanics*), based in Maisons-Alfort.

In the plan for the coming five years, BPLC presents minor changes of the unit's organisation and connection to collaborative partners.

MANAGEMENT TEAM

The unit's head is Ms Nathalie CREVIER-DENOIX and deputy head is Mr Jean-Marie DENOIX.

HCÉRES NOMENCLATURE

SVE1_3 Biotechnologies, sciences environnementales, biologie synthétique, agronomie

SCIENTIFIC DOMAIN

The research at BPLC is concentrated on the equine locomotor apparatus. The unit's activities have a very broad approach that includes the biomechanics (kinetics and kinematics), structure and physiology of the locomotor apparatus as well as the origin, pathology, diagnosis, treatment and prevention of musculoskeletal injuries. The BPLC unit identifies two main, complementary, general objectives:

- To identify and document the causes of locomotor pain (injury sites), so that affected horses can be effectively treated and their comfort (notably while competing) improved. Primarily performed within the IPOA team in Goustranville.
- To understand the biomechanical factors that prompt the onset of orthopaedic lesions during athletic use of horses, in order to reduce the occurrence of injury. Of particular interest to the BAT team at EnvA.

UNIT WORKFORCE

	Unit workforce	
	Equine biomechanics and locomotor disorders	
Active staff	Number 30/06/2018	Number 01/01/2020
Full professors and similar positions	4	4
Assistant professors and similar positions	2	2
Full time research directors (Directeurs de recherche) and similar positions	0	0
Full time research associates (Chargés de recherche) and similar positions	0	0
Other scientists ("Conservateurs, cadres scientifiques des EPIC, fondations, industries, etc.")	0	0
High school teachers	0	0
Supporting personnel (ITAs, BIATSSs and others, notably of EPICs)	3	3
Permanent staff	9	9
Non-permanent professors and associate professors, including emeritus	1	
Non-permanent full time scientists, including emeritus, post-docs	2	
PhD Students	1	
Non-permanent supporting personnel	6 (5.5 FTEs)	
Non-permanent staff	10 (9.5 FTEs)	
Total	19 (18.5FTEs)	9

GLOBAL ASSESSMENT OF THE UNIT

BPLC is an internationally established research unit within the perhaps most important area of equine health and welfare. Injuries and diseases of the horse's musculoskeletal system account for the absolute majority of premature culling, insurance claims, veterinary treatments, threats to the horse industry economy and animal welfare.

With reference to international standards, BPLC is unique in its nature in France. The staff members are widely recognized and respected internationally.

The unit's greatest strength lies in the scientific breadth that BPLC manages to maintain, despite a small staff number. At the same time, the low number of permanent senior researchers is a problem, especially as the unit is divided into two teams that are geographically separated.

The unit's pronounced dependence on external funding, through research councils and commercial firms,

risks that the opportunities for curiosity-driven research are held back.

In the coming five years, BPLC plans to continue and develop research within some of the established fields, where the unit has leadership responsibilities. Based on previous research and available veterinary and technical expertise, the unit will also launch new activities for the prevention and rehabilitation of equine orthopaedic conditions. The plans for future research represent respectable and relevant responses to the needs of the equine sector, including animal welfare, societal and economic perspectives.

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