Date of the CVA	04/02/2020

Section A. PERSONAL DATA

Name and Surname	Bruno David Lourenço Paiva		
NIE	X8744023K	Age	36
Researcher's identification number	Researcher ID		
	Scopus Author ID		
	ORCID		

A.1. Current professional situation

Institution	Universidad de Navarra		
Dpt. / Centre	Flow Cytometry / CIMA LAB Diagnostics		
Address	Pamplona		
Phone	(0034) 948194700 - 1038	Email	bpaiva@unav.es
Professional category	Scientific Coordinator	Start date	2014
UNESCO spec. code	320100 - Clinical sciences		
Keywords			

A.2. Academic education (Degrees, institutions, dates)

Bachelor/Master/PhD	University	Year
Ph.D	Universidad de Salamanca	2011
Máster Degree in Cancer Biology	Universidad de Salamanca	2009
Pharm.D	Universidad de Coimbra	2007

A.3. General quality indicators of scientific production

h-index: 36

Section B. SUMMARY OF THE CURRICULUM

I joined the Hematology Department of the University Hospital of Salamanca has a PhD student in June 2007. In 2011, at age 27, I successfully completed my PhD program on the clinical significance of flow cytometry immunophenotyping in multiple myeloma (MM), paying particular emphasis to methodology optimization and the prognostic value of MRD monitoring. In September 2013, I joined the Hematology and Immunology Departments of the University Clinic of Navarra as research fellow. In 2014, I was appointed Head of the Flow Cytometry Core, and Scientific Coordinator of the Hemato-Oncology diagnostic laboratories of the University of Navarra (CIMA LAB Diagnostics).

With twelve years of research career, I have authorship in 117 publications, being first author in 35, last author in 4 and corresponding author in 4. Among them, there are several publications in the top journals of my field such as the N Engl J Med (n=1), Nat Med (n=1), Nat Gen (n=1), Cancer Cell (n=2), Lancet Oncol (n=4), J Clin Oncol (n=4), Blood (n=22) or Leukemia (n=17). More than 90% of the publications are in the Q1 of their respective specialty. At age 36, my h-index is 36, with more than 5,200 citations (without self-citations) and an average of 51 citations per publication. I have been PI or Co-PI in 12 R&D projects funded through competitive calls of public or private entities, and have established more than 15 R&D non-competitive contracts, agreements or projects with public or private entities. I am also the supervisor of more than 5 ongoing PhD thesis. Among numerous recognitions, I have been awarded with numerous recognitions, including the Bart Barlogie Young Investigator Award in recognition to the outstanding research developed in the field of multiple myeloma, and The Future Leaders in Hematology Award of the 2015 Celgene Awards for Clinical Research in Hematology.

Section C. MOST RELEVANT MERITS (ordered by typology)

C.1. Publications

1 **Scientific paper**. Ledergor, Guy; et al. 2018. Single cell dissection of plasma cell heterogeneity in symptomatic and asymptomatic myeloma NATURE MEDICINE. NATURE PUBLISHING GROUP. 24-12, pp.1867-+. ISSN 1078-8956, ISSN 1546-170X.

2 **Scientific paper**. Sanoja-Flores, L.; et al. 2018. Next generation flow for minimally-invasive blood characterization of MGUS and multiple myeloma at diagnosis based on circulating tumor plasma cells (CTPC) BLOOD CANCER JOURNAL. NATURE PUBLISHING GROUP. 8. ISSN 2044-5385.

3 **Scientific paper**. Flores-Montero, J.; et al. 2017. Next Generation Flow for highly sensitive and standardized detection of minimal residual disease in multiple myeloma LEUKEMIA. NATURE PUBLISHING GROUP. 31-10, pp.2094-2103. ISSN 0887-6924, ISSN 1476-5551.

4 **Scientific paper**. Lahuerta, Juan-Jose; et al. 2017. Depth of Response in Multiple Myeloma: A Pooled Analysis of Three PETHEMA/GEM Clinical Trials JOURNAL OF CLINICAL ONCOLOGY. AMER SOC CLINICAL ONCOLOGY. 35-25, pp.2900-+. ISSN 0732-183X, ISSN 1527-7755.

5 **Scientific paper**. Mishima, Yuji; et al. 2017. The Mutational Landscape of Circulating Tumor Cells in Multiple Myeloma CELL REPORTS. CELL PRESS. 19-1, pp.218-224. ISSN 2211-1247.

6 **Scientific paper**. Seckinger, Anja; et al. 2017. Target Expression, Generation, Preclinical Activity, and Pharmacokinetics of the BCMA-T Cell Bispecific Antibody EM801 for Multiple Myeloma Treatment CANCER CELL. CELL PRESS. 31-3, pp.396-410. ISSN 1535-6108, ISSN 1878-3686.

7 **Scientific paper**. Paiva, B.; et al. 2017. Differentiation stage of myeloma plasma cells: biological and clinical significance LEUKEMIA. NATURE PUBLISHING GROUP. 31-2, pp.382-392. ISSN 0887-6924, ISSN 1476-5551.

8 **Scientific paper**. Mateos, Maria-Victoria; et al. 2016. Lenalidomide plus dexamethasone versus observation in patients with high-risk smouldering multiple myeloma (QuiRedex): long-term follow-up of a randomised, controlled, phase 3 trial LANCET ONCOLOGY. ELSEVIER SCIENCE INC. 17-8, pp.1127-1136. ISSN 1470-2045, ISSN 1474-5488.

9 **Scientific paper**. Paiva, Bruno; et al. 2016. Minimal residual disease monitoring and immune profiling in multiple myeloma in elderly patients BLOOD. AMER SOC HEMATOLOGY. 127-25, pp.3165-3174. ISSN 0006-4971, ISSN 1528-0020.

10 **Scientific paper**. Paiva, Bruno; et al. 2016. Phenotypic, transcriptomic, and genomic features of clonal plasma cells in light-chain amyloidosis BLOOD. AMER SOC HEMATOLOGY. 127-24, pp.3035-3039. ISSN 0006-4971, ISSN 1528-0020.

11 **Scientific paper**. Paiva, Bruno; et al. 2016. Phenotypic and genomic analysis of multiple myeloma minimal residual disease tumor cells: a new model to understand chemoresistance BLOOD. AMER SOC HEMATOLOGY. 127-15, pp.1896-1906. ISSN 0006-4971, ISSN 1528-0020.

12 **Scientific paper**. Paiva, Bruno; et al. 2016. Immune status of high-risk smoldering multiple myeloma patients and its therapeutic modulation under LenDex: a longitudinal analysis BLOOD. AMER SOC HEMATOLOGY. 127-9, pp.1151-1162. ISSN 0006-4971, ISSN 1528-0020.

13 **Scientific paper**. Paiva, Bruno; et al. 2015. The cellular origin and malignant transformation of Waldenstrom macroglobulinemia BLOOD. AMER SOC HEMATOLOGY. 125-15, pp.2370-2380. ISSN 0006-4971, ISSN 1528-0020.

14 **Scientific paper**. Paiva, Bruno; et al. 2014. Multiparameter flow cytometry for staging of solitary bone plasmacytoma: new criteria for risk of progression to myeloma BLOOD. AMER SOC HEMATOLOGY. 124-8, pp.1300-1303. ISSN 0006-4971, ISSN 1528-0020.

15 **Scientific paper**. Paiva, B.; et al. 2014. Multiparameter flow cytometry for the identification of the Waldenstrom's clone in IgM-MGUS and Waldenstrom's Macroglobulinemia: new criteria for differential diagnosis and risk stratification LEUKEMIA. NATURE PUBLISHING GROUP. 28-1, pp.166-173. ISSN 0887-6924, ISSN 1476-5551.

16 **Scientific paper**. Paiva, Bruno; et al. 2013. Detailed characterization of multiple myeloma circulating tumor cells shows unique phenotypic, cytogenetic, functional, and circadian distribution profile BLOOD. AMER SOC HEMATOLOGY. 122-22, pp.3591-3598. ISSN 0006-4971, ISSN 1528-0020.

17 **Scientific paper**. Mateos, Maria-Victoria; et al. 2013. Lenalidomide plus Dexamethasone for High-Risk Smoldering Multiple Myeloma NEW ENGLAND JOURNAL OF MEDICINE. MASSACHUSETTS MEDICAL SOC. 369-5, pp.438-447. ISSN 0028-4793, ISSN 1533-4406.

18 **Scientific paper**. Paiva, B.; et al. 2012. Clinical significance of CD81 expression by clonal plasma cells in high-risk smoldering and symptomatic multiple myeloma patients LEUKEMIA. NATURE PUBLISHING GROUP. 26-8, pp.1862-1869. ISSN 0887-6924, ISSN 1476-5551.

19 **Scientific paper**. Paiva, Bruno; et al. 2012. High-risk cytogenetics and persistent minimal residual disease by multiparameter flow cytometry predict unsustained complete response after autologous stem cell transplantation in multiple myeloma BLOOD. AMER SOC HEMATOLOGY. 119-3, pp.687-691. ISSN 0006-4971.

20 **Scientific paper**. Paiva, B.; et al. 2011. Competition between clonal plasma cells and normal cells for potentially overlapping bone marrow niches is associated with a progressively altered cellular distribution in MGUS vs myeloma LEUKEMIA. NATURE PUBLISHING GROUP. 25-4, pp.697-706. ISSN 0887-6924.

21 **Scientific paper**. Paiva, Bruno; et al. 2011. The clinical utility and prognostic value of multiparameter flow cytometry immunophenotyping in light-chain amyloidosis BLOOD. AMER SOC HEMATOLOGY. 117-13, pp.3613-3616. ISSN 0006-4971.

22 **Scientific paper**. Paiva, Bruno; et al. 2009. The persistence of immunophenotypically normal residual bone marrow plasma cells at diagnosis identifies a good prognostic subgroup of symptomatic multiple myeloma patients BLOOD. AMER SOC HEMATOLOGY. 114-20, pp.4369-4372. ISSN 0006-4971.

23 **Scientific paper**. Paiva, Bruno; et al. 2008. Multiparameter flow cytometric remission is the most relevant prognostic factor for multiple myeloma patients who undergo autologous stem cell transplantation BLOOD. AMER SOC HEMATOLOGY. 112-10, pp.4017-4023. ISSN 0006-4971.

24 Kumar, Shaji; et al. 2016. International Myeloma Working Group consensus criteria for response and minimal residual disease assessment in multiple myeloma LANCET ONCOLOGY. 17-8, pp.E328-E346. ISSN 1470-2045, ISSN 1474-5488.

25 Rajkumar, S. Vincent; et al. 2014. International Myeloma Working Group updated criteria for the diagnosis of multiple myeloma LANCET ONCOLOGY. 15-12, pp.E538-E548. ISSN 1470-2045, ISSN 1474-5488.

C.2. Participation in R&D and Innovation projects

1 Inmunomonitorización de nueva generación en mieloma múltiple Instituto de Salud Carlos III. Bruno Paiva. (Clínica Universitaria de Navarra). 2018-2021. 135.750 €. Principal investigator.

2 Integrated next-generation flow cytometry and sequencing to uncover the pathway of curability in multiple myeloma European Research Council (ERC). Bruno Paiva. (Clínica Universitaria de Navarra). 2016-2021. 1.500.000 €. Principal investigator.

3 Single-cell next-generation flow and sequencing to unravel the pathogenesis of Waldenström's Macroglobulinemia and to design genetically-driven human-like experimental models Leukemia Lymphoma Society. Bruno Paiva. (Universidad de Navarra). 15/09/2017-14/09/2019. 368.000 €. Principal investigator.

4 Next-generation immune monitoring in multiple myeloma European Hematology Association. Bruno Paiva. (Clínica Universitaria de Navarra). 2018-2019. 160.000 €. Principal investigator.

5 Firma molecular de la enfermedad mínima residual: nuevo camino hacia la curación del mieloma múltiple Banco Bilbao Vizcaya Argentaria. Bruno Paiva. (Universidad de Navarra). 01/08/2017-31/12/2018. 40.000 €. Principal investigator.

6 Automated multidimensional flow cytometry for high-sensitive screening and to monitor response in AL amyloidosis International Myeloma Foundation. Bruno Paiva. (Clínica Universitaria de Navarra). 01/01/2014-01/01/2017. 120.000 €. Principal investigator.
7 Defining MRD and stem myeloma clones of to understand ultra-chemoresistance American Association of Cancer Research (AACR). Bruno Paiva. (Clínica Universitaria de Navarra). 2016-2017. 100.000 €. Principal investigator.
8 Next-generation flow and sequencing to establish the pathogenesis and chemoresistant reservoirs of multiple myeloma Leukemia Research Foundation. Bruno Paiva. (Universidad de Navarra). 2016-2017. 80.000 €. Principal investigator.
9 Phenotypic and molecular characterization of circulating tumor cells and minimal residual disease myeloma cells: understanding disease dissemination and chemoresistance International Myeloma Foundation. Bruno Paiva. (Clínica Universitaria de Navarra). 2014-2016. 50.000 €.
10 Understanding the resistant plasma cell: the dream of curing Myeloma Multiple Myeloma Research Foundation (MMRF). Bruno David Lourenço Paiva. (HOSPITAL UNIVERSITARIO DE SALAMANCA). 2013-2013. 75.000 €. Co-ordinator.

C.3. Participation in R&D and Innovation contracts

1 CTC MONITORING IN A PHASE 1/2 MULTICENTER, OPEN-LABEL STUDY TO ASSESS THE SAFETY, PHARMACOKINETICS AND PRELIMINARY EFFICACY OF CC-92480 ALONE AND IN COMBINATION WITH DEXAMETHASONE IN SUBJECTS WITH RELAPSED AND REFRACTORY MULTIPLE MYELOM Celgene. Bruno Paiva. From 2018.
2 Immune profiling in CC93269 BCMA TCE clinical trials Celgene. Bruno Paiva. From 2018.
3 Immune profiling in bb2121-MM-001 clinical trials Celgene. Bruno Paiva. From 2018.
4 Correlative biomarker studies in BO39813 three arm study in R/R MM Roche Farma, S.A.. Bruno Paiva. From 10/2017.
5 Characterize Immune Effects of ABBV-838 in Relapsed/Refractory Multiple MyelomaPatients Participating in Trial M14-467 Abbvie. From 2016. 350.000 €.
6 MRD monitoring in C16014, C16019, C16020 and C16021 clinical trials Takeda. Bruno Paiva. From 2016. 700.000 €.
7 A Phase 1b Study of SAR650984 (Anti-CD38 mAb) in Combination therapy for the Treatment of Relapsed or Relapsed/Refractory Multiple Myeloma Sanofi Aventis. Bruno Paiva. From 01/01/2015. 79.017 €.
8 A Randomized, Open-label Phase 3 Study of Carfilzomib, Melphalan, and Prednisone versus Bortezomib, Melphalan, and Prednisone in Transplant-ineligible Patients with Newly Diagnosed Multiple Myeloma Amgen. Bruno Paiva. From 01/08/2014. 85.013 €.
9 Targeting B cell Maturation Antigen with T Cell Bispecific Antibody in Multiple Myeloma EngMab. Bruno Paiva. From 01/08/2014. 57.000 €.
10 To evaluate (a) Sanofi's proprietary CD38 receptor density assay and (b) Sanofi's proprietary anti-CD38 antibody SAR650984 in multiple myeloma patient samples Sanofi Aventis. Bruno Paiva. From 01/08/2014. 27.048 €.

C.4. Patents

Diem Mihn; Klaus Strein; Bruno Paiva; Jesús San Miguel. WO 2018/083204 A1. BISPECIFIC ANTIBODY AGAINST BCMA AND CD3 AND AN IMMUNOLOGICAL DRUG FOR COMBINED USE IN TREATING MULTIPLE MYELOMA Switzerland. 11/05/2118. ENGMAB.