



WHO Global Consultation - Monkeypox Vaccine Study Designs objective

Current situation in Spain

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Main objective

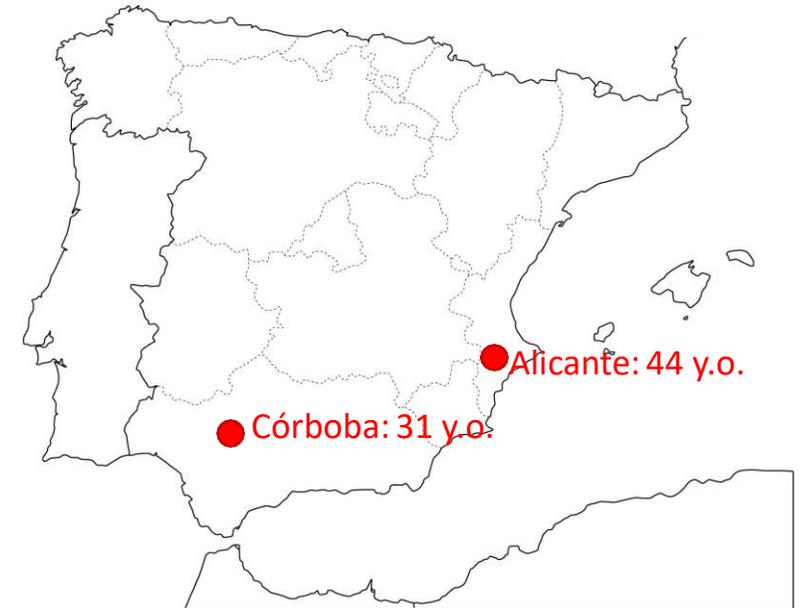
- Analysis of genomic risk factors to identify MPX patients at high risk for encephalitis and other life-threatening complications.
- To devise tailor-made therapies focusing on high-risk patients.

Current situation in Spain

	Total cases	Cumulative hospitalized cases (death)	Current	Severe cases
MADRID	1766	49	10	No
CATALUÑA	1406	16	1	No
ANDALUCÍA	545	14 (1)	0	1 encephalitis
VALENCIA	224	14 (1)	0	1 encephalitis
CLM	23	2	0	No
MURCIA	23	0	0	No
CANARIAS	104	3	0	No
LA RIOJA	3	0	0	No
PAÍS VASCO	108	4	0	No
BALEARES	89	4	1	No
ARAGÓN	45	5	1	No
GALICIA	41	6	0	No
Castilla y León	31	2	0	No
EXTREMADURA	20	0	0	No
CANTABRIA	15	2	1	No
NAVARRA	8	1	0	No
ASTURIAS	40	6	0	No
CEUTA	0	0	0	No
MELILLA	0	0	0	No
TOTAL	4491	128 (2)	14	2

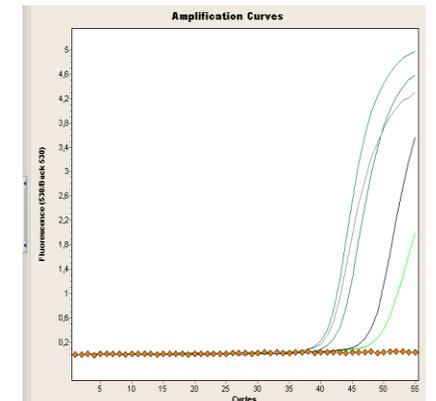
Encephalitis in MPX patients in Spain

- 2 ♂
- Age: 44, 31
- Loss of consciousness: fatal evolution
- Patients without an epidemiological link
- No associated risk factors:
 - No immunocompromised
 - No other chronic diseases



Strategy for identification of encephalitis

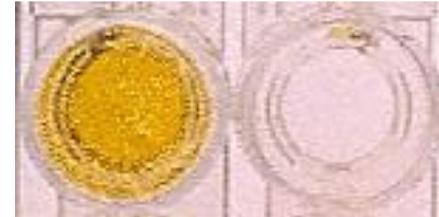
- Diferencial etiological diagnosis in CSF
 - Viral Specific PCR: West Nile and Toscana virus, enterovirus, herpesvirus
 - Bacterial specific PCR: Brucellosis, listeria, among others
 - Metagenomic approach to detect any potential pathogenic microorganism
- MPX detection in CSF:
 - MPXV genome in CSF
 - IgM detection in CSF
- MPXV genome characterization
 - From vesicular lesion



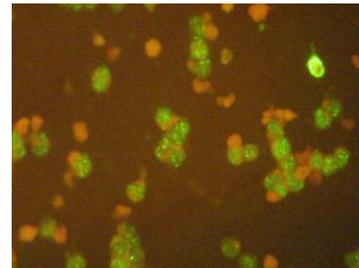
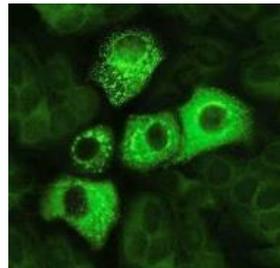
MPX detection in CSF

- IgM detection for acute MPX infection

- ELISA kit (IVD serum/plasma)
 - Available 2-3 weeks (Raybiotech – USA)

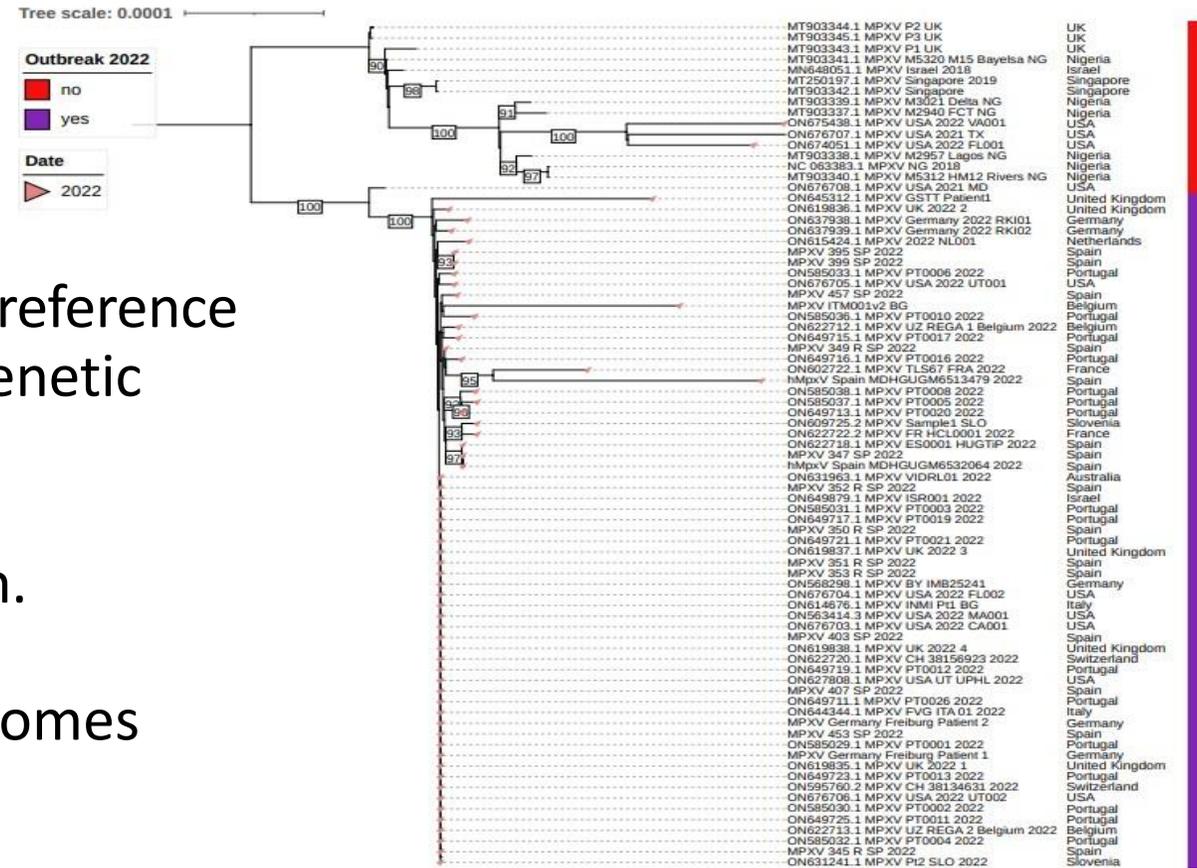


- IFI in house
 - Vero E6



MPXV genome characterization (vesicular lesion or CSF+)

- Consensus sequencing by mapping against reference genome and Clade identification by phylogenetic analysis
- SNPs analysis, identification and annotation.
- Genomic comparison with other MPXV genomes





Monkeypox outbreak in Madrid (Spain): Clinical and virological aspects

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SUMMARY

Background: Monkeypox is the most prevalent Orthopoxvirus zoonosis infection since the eradication of smallpox. The current multi-country outbreak involves five WHO regions affecting mainly Europe. Accurate clinical and virological aspects of the disease outside endemic areas are needed.

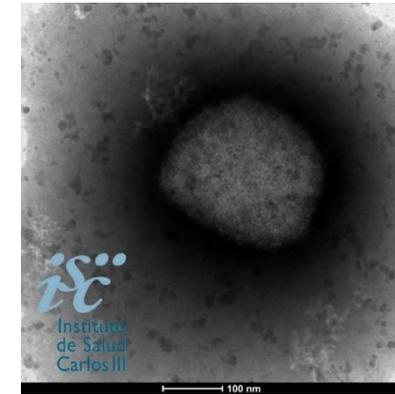
Methods: We performed an observational study of cases diagnosed in Madrid (Spain) (May/June 2022). Confirmation from vesicular lesions swabs, Orthopoxvirus real-time PCR, sequencing, phylogenetic analysis, and direct detection by Electron microscopy was performed. In addition, a structured epidemiological questionnaire was completed systematically to gather sociodemographic, clinical, and behavioral data from all confirmed cases.

Findings: We extracted data from 48 patients, all cisgender men. The median age was 35 years (IQR 29 – 44), and 87.5% were MSM. The most prevalent symptoms were the presence of vesicular-umbilicated and pseudo-pustular skin lesions (93.8%), asthenia (66.6%), and fever (52.1%). In addition, the location of the lesions in the genital or perianal area was related to the role in sexual intercourse ($p < 0.001$). Sequencing analysis indicated the virus circulating in Spain belongs to the western African clade. Like the other European cases in the outbreak, the Spanish isolates are a direct descendant of viruses previously detected in Nigeria, the UK, Singapore, and Israel in 2017–2018.

Conclusions: Monkeypox is an emerging infectious disease in Europe where community transmission is reported, mainly in MSM. The first symptom was skin lesions instead of classical fever and rash. The disease follows a self-limited course, and there have been no cases with a serious presentation or severe complications.

Outbreak in Madrid: Clinical and Virological Characterization

- 48 patients
- Vesicular and pustular skin lesions (93,8%)
- Lesions in the genital and perianal areas
- Western African clade was detected



NATIONAL CENTER FOR MICROBIOLOGY, CNM-ISCIII

- Laboratory of Arboviruses and Viral Imported Diseases
- Serology Unit
- BSL-3
- Rapid Response Unit (24h/7d)
- ISCIII-Core facilities: Genomics and Bioinformatics Units

Health National System

Alert and Emergency Coordination Center (CCAES)

