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So far and yet so near: what is an ocean for cluster EA phages infecting Microbacterium foliorum ?

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To explore the diversity of phages in Europe, students from Paris-Saclay University sampled soil and sprigs of grass in the region surrounding their campus, located 20 km southwest of Paris, France. Their samples yielded two phages infecting *Microbacterium foliorum* NRRL B-24224 through direct isolation. Following at least two rounds of purification, both phages exhibited clear plaques of approximately 1 mm in diameter, suggesting a lytic lifecycle. Transmission electron microscopy revealed a siphovirus morphotype for both phages BouleyBill and Carostasia with capsid diameters of 55 and 60 nm, and tails of 128 and 134 nm, respectively. Sequencing revealed that both phages belong to cluster EA, but are further classified in different subclusters. BouleyBill (subcluster EA4) and Carostasia (subcluster EA10) have comparable genome sizes (39,215-bp and 40,393-bp, respectively) and GC content (63.8 and 64.2 %, respectively) with circularly permutated ends. Structural annotation revealed 55 and 63 predicted genes, respectively. Functional annotation is currently underway.
Until our analysis, ten phages belonging to subcluster EA4 and five to subcluster EA10 had been characterized. They were all isolated in Northern America. Our study extends the known geographical distribution of both phage subclusters all the way across the Atlantic Ocean.