

Figure S1. Laser ablation depth in calendered and uncalendered NMC 622 electrodes with increasing number of laser scan passes using laser parameters for L2 patterning.

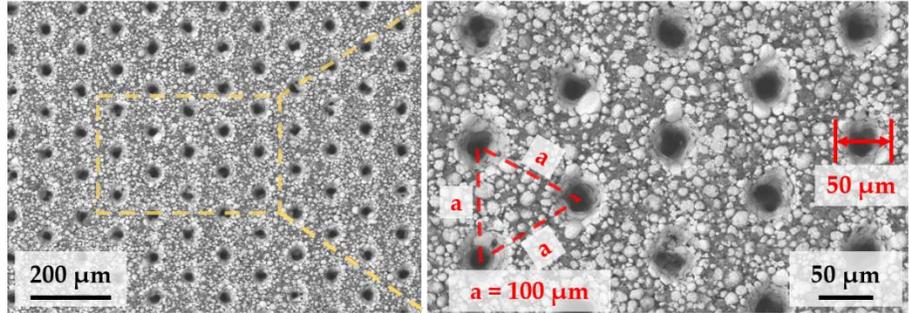


Figure S2. SEM images of laser structured electrodes with Ho structure providing a periodicity of $a = 100 \mu\text{m}$ (equilateral triangle).

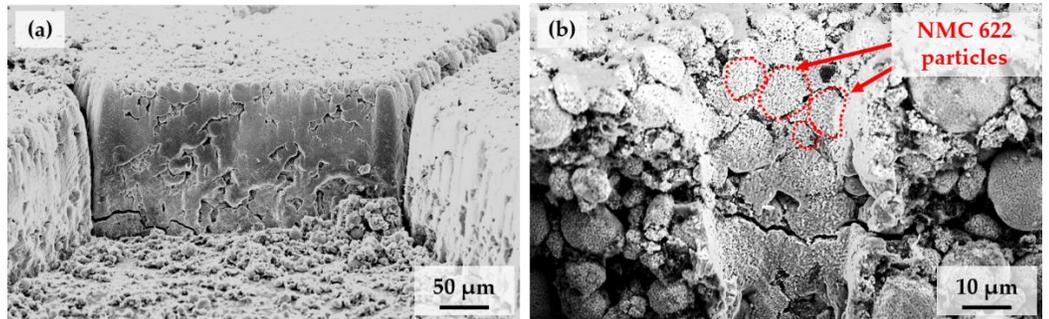


Figure S3. SEM images of (a) a sidewall of laser patterned NMC 622 electrodes with HexHo structure and (b) the cross-sectional view of a hole in the center of a hexagonal pillar.

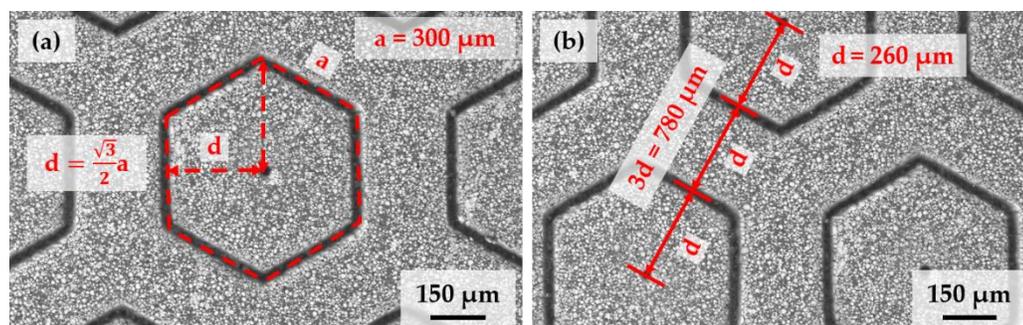


Figure S4. SEM images of laser structured NMC 622 electrodes with Sep.HexHo structure. (a) A hexagon with central hole and (b) the distance between adjacent hexagons.

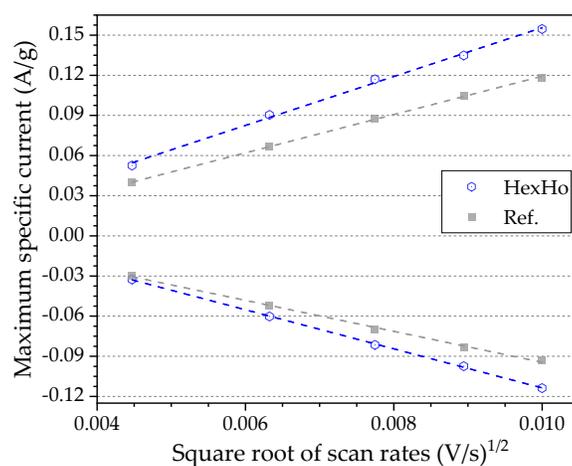


Figure S5. The maximum specific current versus square root of scan rates for reference cell and those having laser structured NMC 622 cathodes with HexHo pattern type.

Table S1. The total surface areas of laser structured electrodes with different pattern types and their surface area increase in contrast to the unstructured electrode.

Pattern types	Total surface area (mm ²)	Surface area increase (%)
Unstructured	113	-
L1	260	130
L2	252	123
LiHo	234	107
GHo	193	71
Ho	252	123
Hex	226	100
HexHo	231	104
Sep.HexHo	207	83