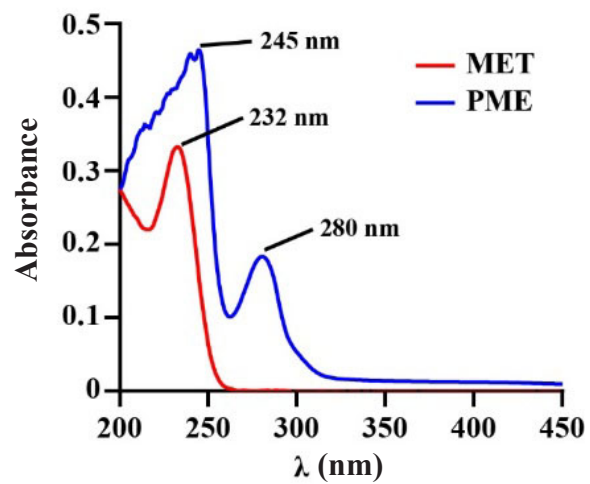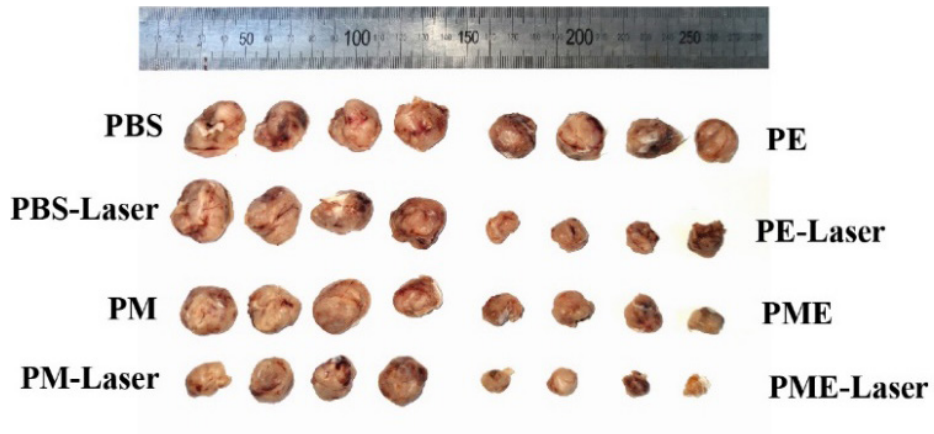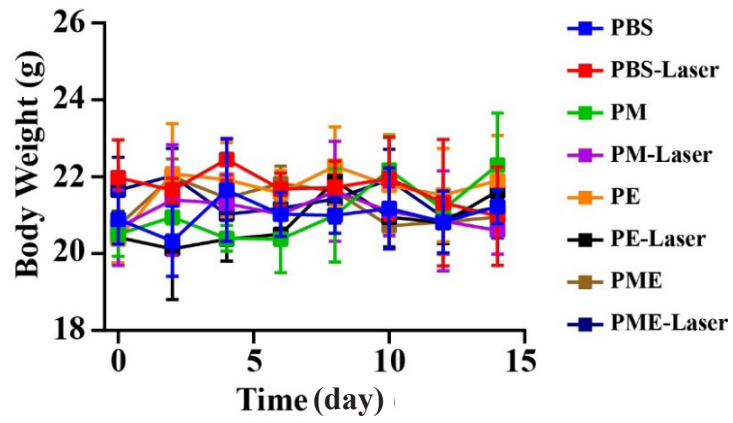**Additional Figure 1.** Representative SEM image of the prepared ECN. Scale bar: 500 nm. ECN: *Escherichia coli* Nissle 1917; SEM: scanning electron microscope.

Additional Figure 2. Characteristic absorption peak of MET and PME by ultraviolet-visible spectroscopy. MET: metformin; PDA: polydopamine; PME: PDA@MET@ECN.

Additional Figure 3. The appearance of CT26 tumours. ECN: *Escherichia coli* Nissle 1917; MET: metformin; PBS: phosphate buffered saline; PDA: polydopamine; PE: PDA@ECN; PM: PDA@MET; PME: PDA@MET@ECN.

Additional Figure 4. Body weight during the different treatments. ECN: *Escherichia coli* Nissle 1917; MET: metformin; PBS: phosphate buffered saline; PDA: polydopamine; PE: PDA@ECN; PM: PDA@MET; PME: PDA@MET@ECN.