**Supporting Information Available**.

**Captions**

**SI1**. TEM images of (A) PLGA particles, (B) LipoParticles with a PLGA core and a DPPC/DPTAP 10/90 molar ratio coating (Av/Ap = 5, red arrows highlight the lipid coating onto the PLGA particles). All samples were stained with sodium silico tungstate at 1% w/v in water.

**SI2.** Three other examples of confocal laser scanning microscopy analysis of *in vitro* cellular uptake of LipoParticles composed of DPPC/DPTAP/TopFluor®-PC 9/90/1 molar ratio and PLGA particles, after their incubation for 24 h at 37°C, under 5% of $CO_2$, in DMEM supplemented with 10% of FCS with MG63 osteoblast cells. Colors of different staining agents used: A) red for Alexa Fluor 647 phalloidin (staining the MG63 cells), B) orange for rhodamine B (staining the PLGA particles), C) green for TopFluor®-PC fluorescent lipid (staining the lipid membranes), and D) all colors are merged showing the co-localization of different species. Magnification x40, scale bar = 50 µm.

**SI3.** Three other examples of confocal laser scanning microscopy analysis of *in vitro* uptake in MG63 osteoblast cells of LipoParticles composed of DPPC/DPTAP/DPPE-PEG5000/TopFluor®-PC 7/90/2/1 molar ratio and PLGA particles after their incubation for 24 h at 37°C, under 5% of $CO_2$ in DMEM supplemented with 10% of FCS with MG63 osteoblast cells. Colors of different staining agents used: A) red for Alexa Fluor 647 phalloidin (staining the MG63 cells), B) orange for rhodamine B (staining the PLGA particles), C) green for TopFluor®-PC fluorescent lipid (staining the lipid membranes), and D) all colors are merged showing the co-localization of different species. Magnification x40, scale bar = 50 µm.

**SI4.** "Z-stack" images in confocal laser scanning microscopy analysis of MG63 osteoblast cells (stained in red) incubated for 24 h at 37°C, under 5% of $CO_2$ in DMEM supplemented with 10% of FCS, with LipoParticles with a lipid coating of DPPC/DPTAP/DPPE-

PEG5000/TopFluor®-PC 7/90/2/1 molar ratio (stained in green), and with a PLGA particle core (stained in orange). "Z-stack" composed of 22 images (20 representative images have been selected for this figure) covering a depth of 9,64 µm (each confocal plan was acquired at each 0,45 µm in the Z axis). Scale bar = 50 µm.

**SI5**. Gating strategies, dot plots, and overlay histograms obtained by flow cytometry.

**SI6**. TEM images of ultrathin sections (100 nm) obtained by ultramicrotomy of MG63 osteoblast cells (**N** = nucleus, **M** = mitochondria) infected by intracellular *Staphylococcus aureus* (**SA**) incubated with LipoParticles (**LP**).

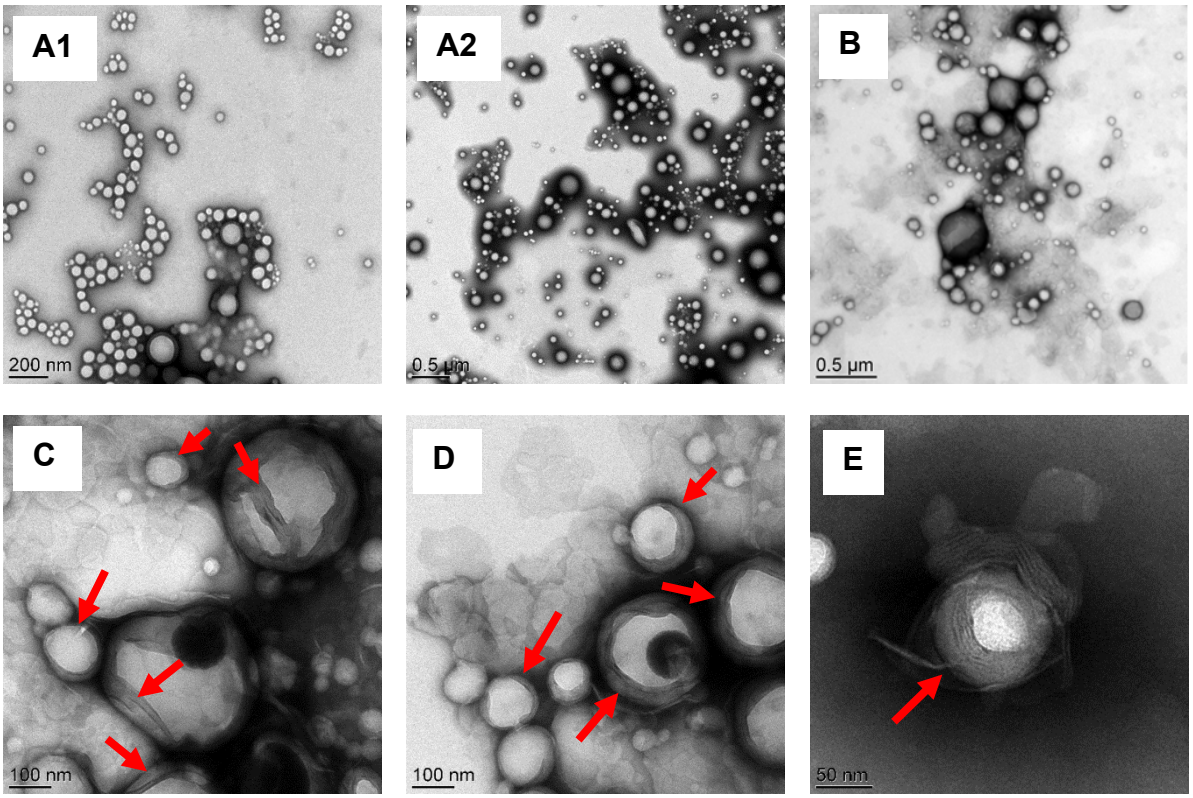
**SI7**. TEM images of ultrathin sections (100 nm) obtained by ultramicrotomy of MG63 osteoblast cells (**N** = nucleus, **M** = mitochondria) non-infected by intracellular *Staphylococcus aureus*.

**SI8**. TEM image of an ultrathin section (100 nm) obtained by ultramicrotomy of MG63 osteoblast cells infected by intracellular *Staphylococcus aureus* (**SA**).

**SI9**. TEM images of ultrathin sections (100 nm) obtained by ultramicrotomy of MG63 osteoblast cells (**N** = nucleus, **M** = mitochondria) infected by intracellular *Staphylococcus aureus* (**SA**) incubated with PLGA particles (**P**).

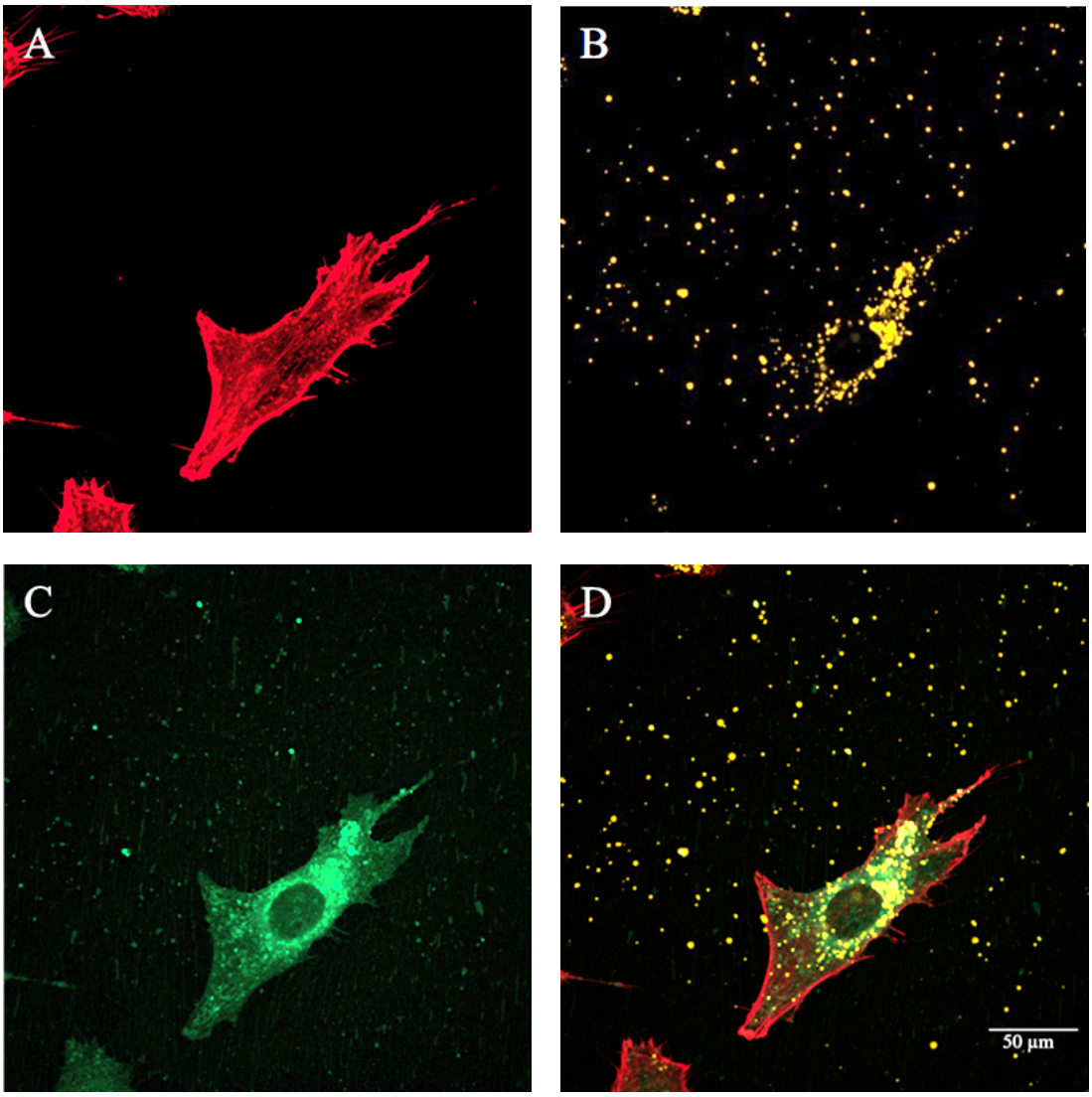
**SI10**. TEM images of ultrathin sections (100 nm) obtained by ultramicrotomy of PLGA particles (**P**, at left), and DPPC/DPTAP/DPPE-PEG5000 8/90/2 (molar ratio) LipoParticles (**LP**, at right). The samples were post-fixed with osmium tetroxide (1% w/v in water), so extracellular PLGA particles and extracellular LipoParticles particles appear in grey, contrarily to intracellular PLGA particles and intracellular LipoParticles (in white in the other images implying MG3 osteoblast cells) which were less in contact with osmium tetroxide.

**SI1**. TEM images of (A1 and A2) PLGA particles, compared to (B) LipoParticles with a PLGA core and a DPPC/DPTAP 10/90 molar ratio coating (Av/Ap = 5). At higher magnification (C-E), red arrows highlight the lipid coating onto the PLGA particles). All samples were stained with sodium silico tungstate at 1% w/v in water.



**SI2.** Three other examples of confocal laser scanning microscopy analysis of *in vitro* cellular uptake of LipoParticles composed of DPPC/DPTAP/TopFluor®-PC 9/90/1 molar ratio and PLGA particles, after their incubation for 24 h at 37°C, under 5% of $CO_2$, in DMEM supplemented with 10% of FCS with MG63 osteoblast cells. Colors of different staining agents used: A) red for Alexa Fluor 647 phalloidin (staining the MG63 cells), B) orange for rhodamine B (staining the PLGA particles), C) green for TopFluor®-PC fluorescent lipid (staining the lipid membranes), and D) all colors are merged showing the co-localization of different species. Magnification x40, scale bar = 50 µm.

**First example:**



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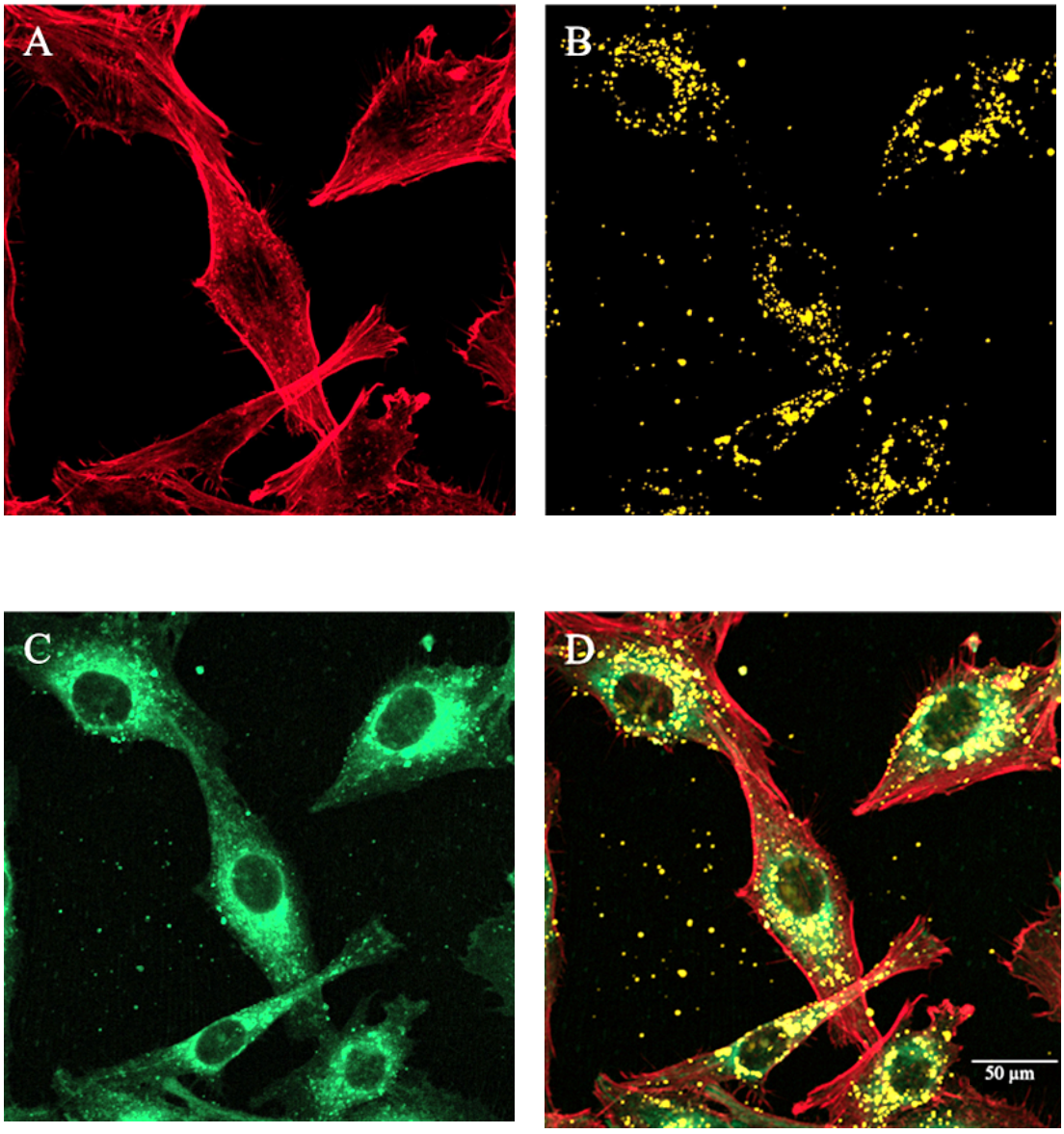

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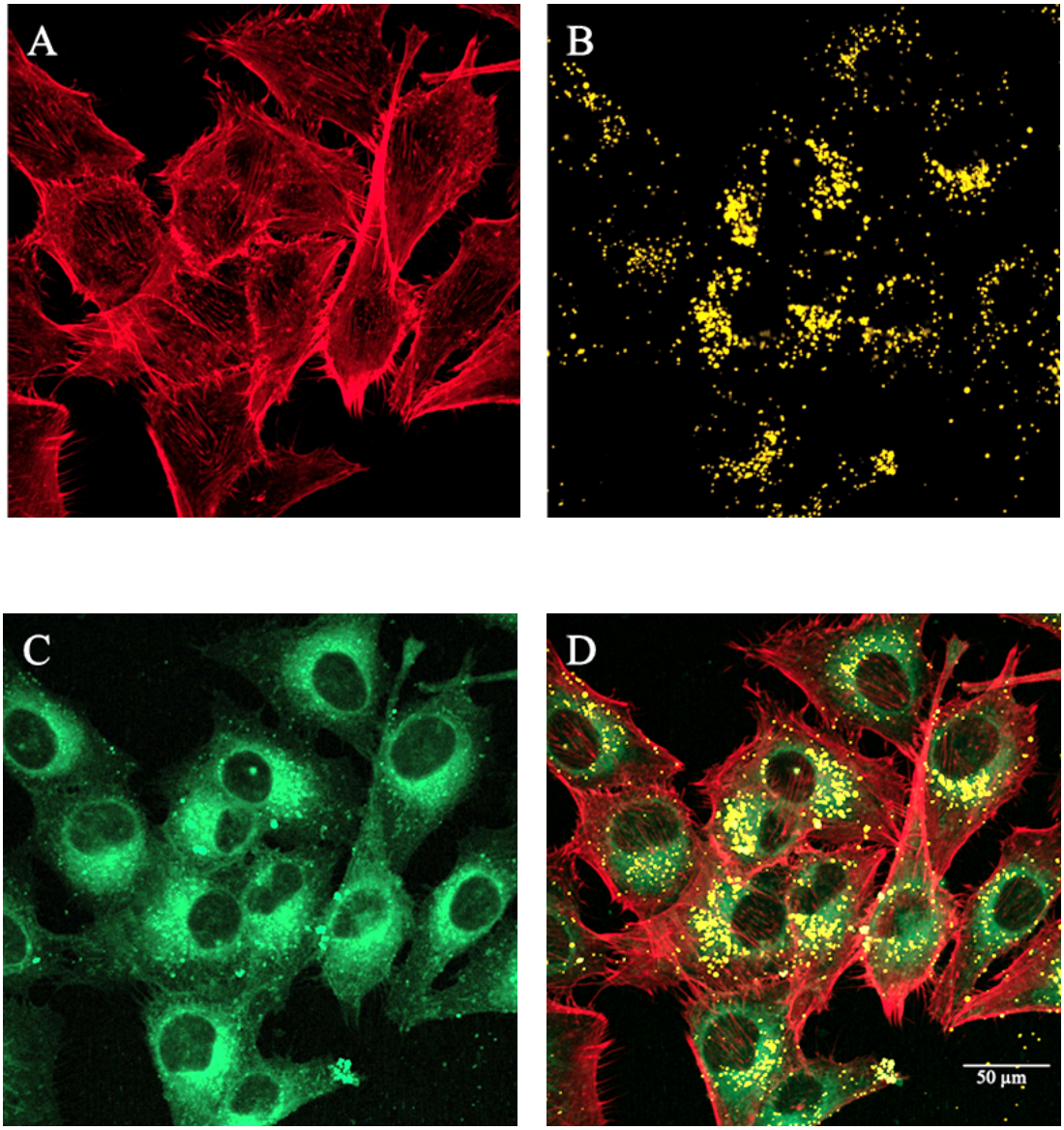
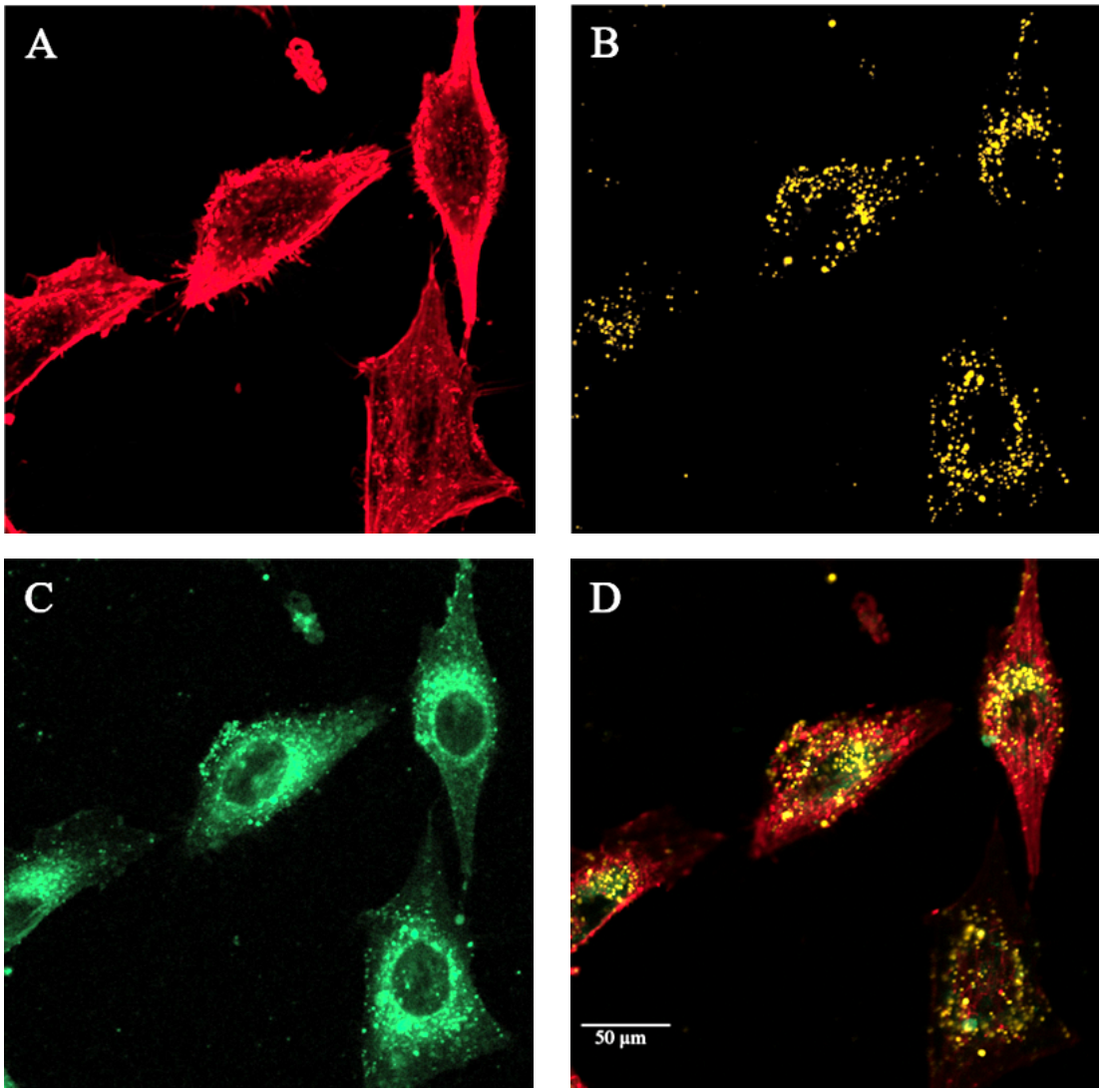



70

**SI3.** Three other examples of confocal laser scanning microscopy analysis of *in vitro* uptake in MG63 osteoblast cells of LipoParticles composed of DPPC/DPTAP/DPPE-PEG5000/TopFluor®-PC 7/90/2/1 molar ratio and PLGA particles after their incubation for 24 h at 37°C, under 5% of $CO_2$ in DMEM supplemented with 10% of FCS with MG63 osteoblast cells. Colors of different staining agents used: A) red for Alexa Fluor 647 phalloidin (staining the MG63 cells), B) orange for rhodamine B (staining the PLGA particles), C) green for TopFluor®-PC fluorescent lipid (staining the lipid membranes), and D) all colors are merged showing the co-localization of different species. Magnification x40, scale bar = 50 µm.

**First example:**



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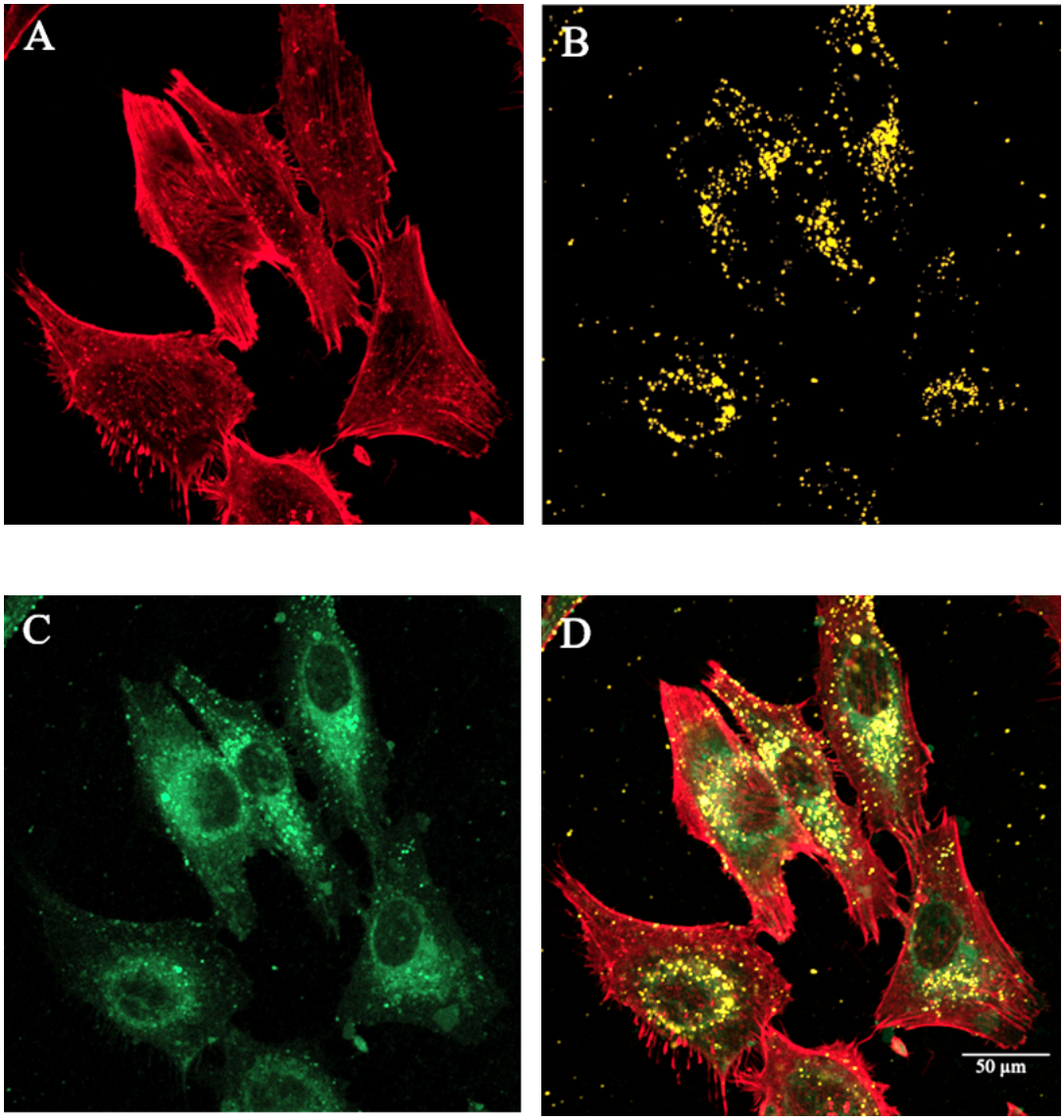
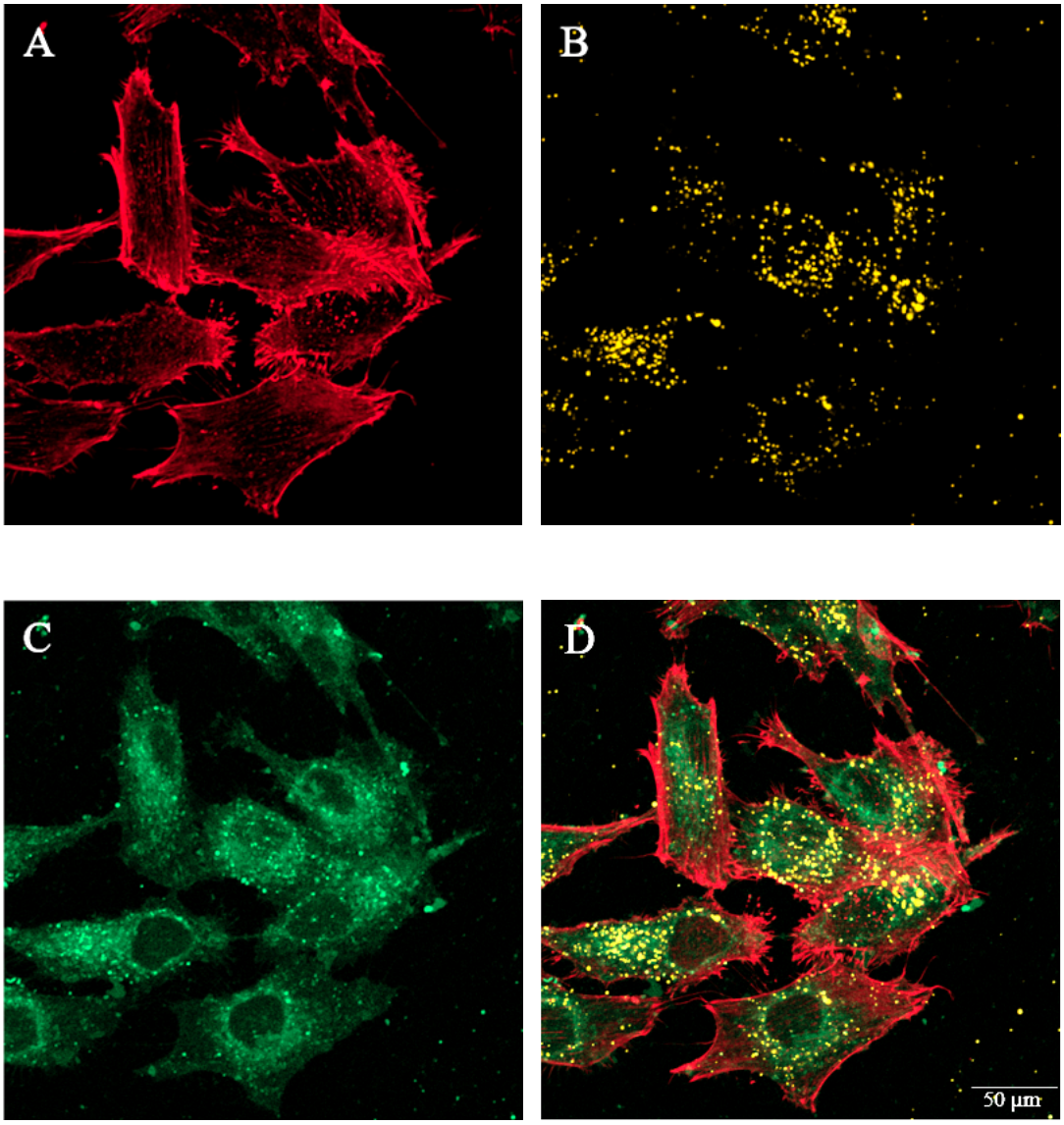
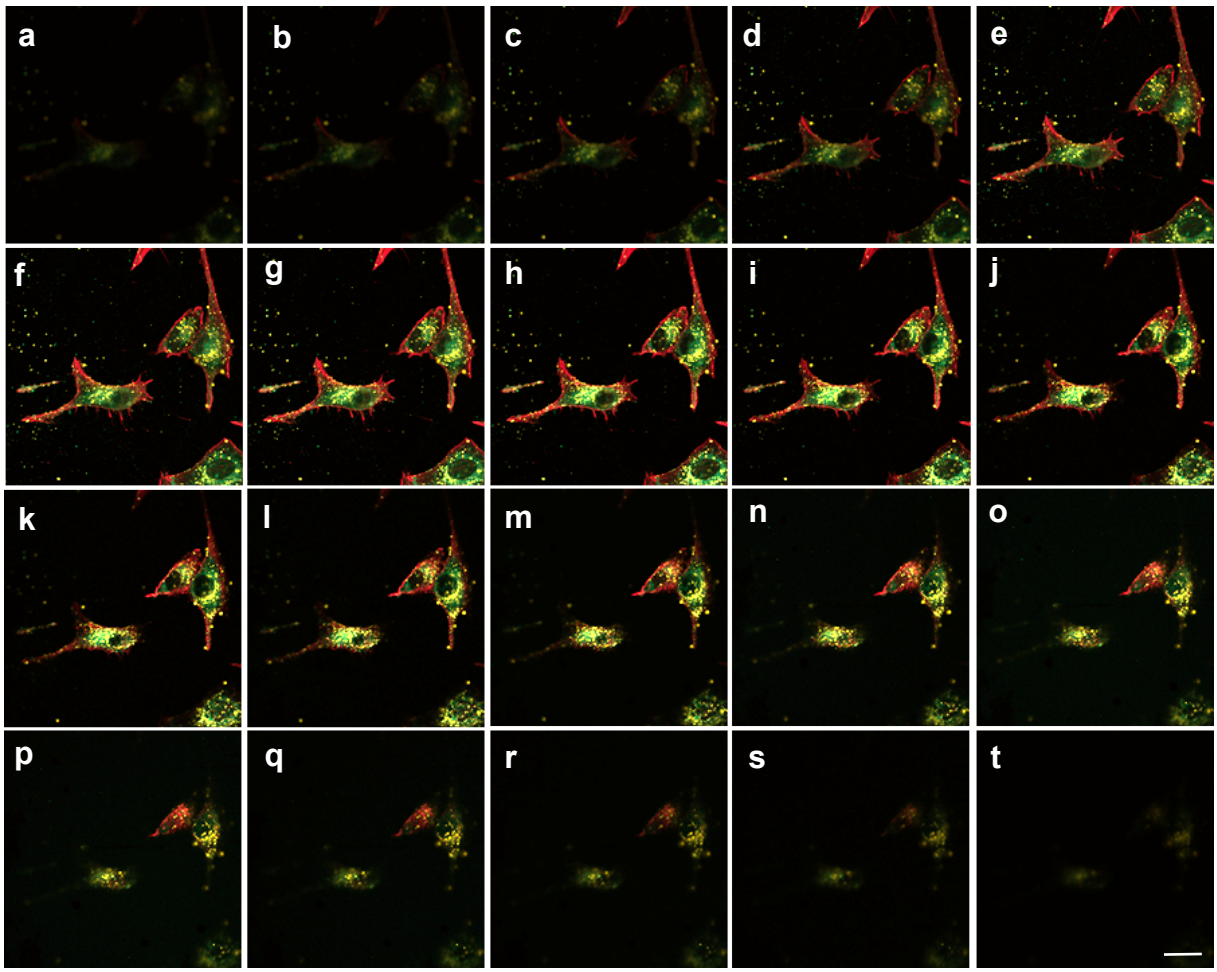



85

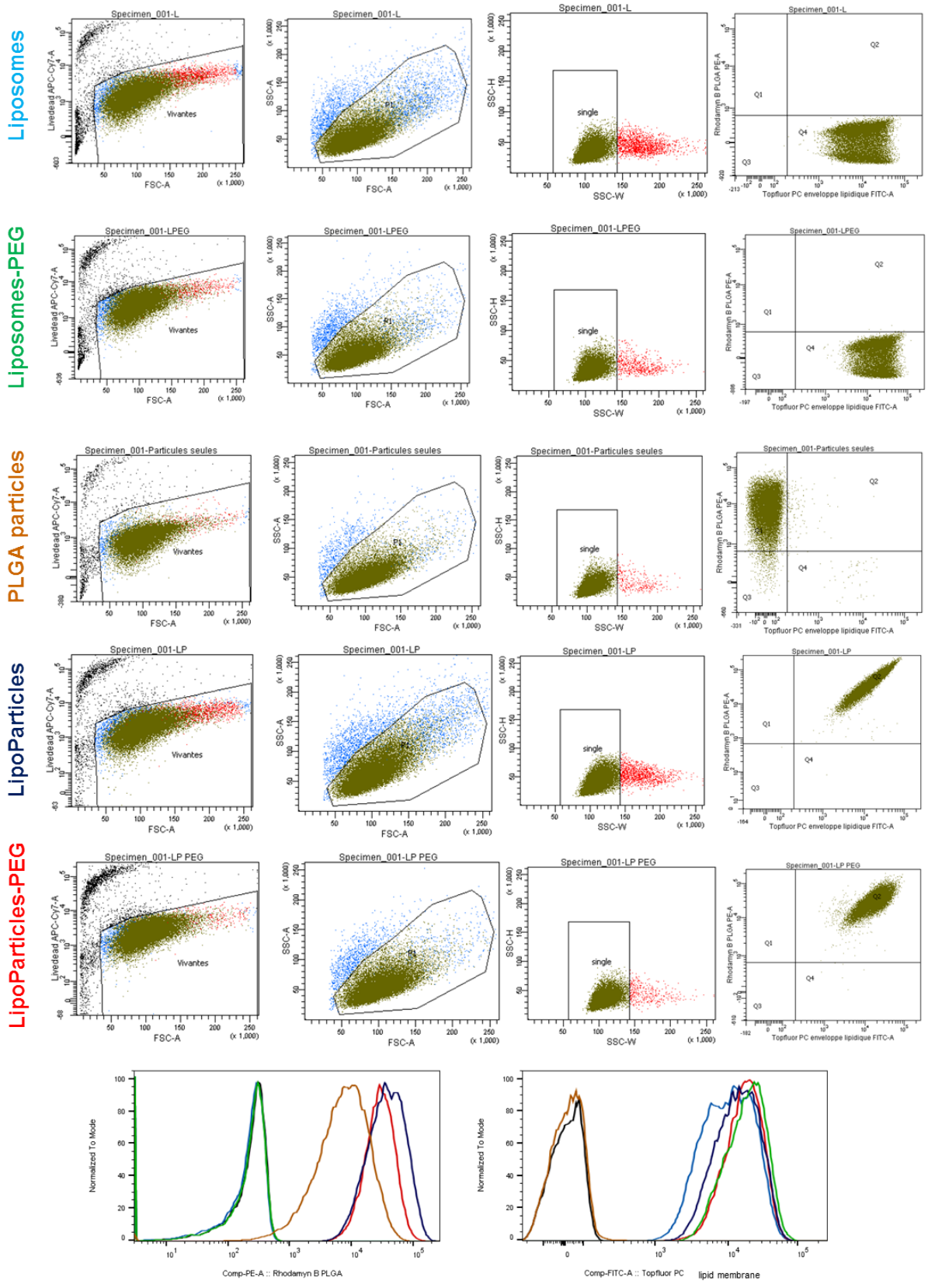
**Third example:**



**SI4.** "Z-stack" images in confocal laser scanning microscopy analysis of MG63 osteoblast cells (stained in red) incubated for 24 h at 37°C, under 5% of $CO_2$ in DMEM supplemented with 10% of FCS, with LipoParticles with a lipid coating of DPPC/DPTAP/DPPE-PEG5000/TopFluor®-PC 7/90/2/1 molar ratio (stained in green), and with a PLGA particle core (stained in orange). "Z-stack" composed of 22 images (20 representative images have been selected for this figure) covering a depth of 9,64 µm (each confocal plan was acquired at each 0,45 µm in the Z axis). Scale bar = 50 µm.



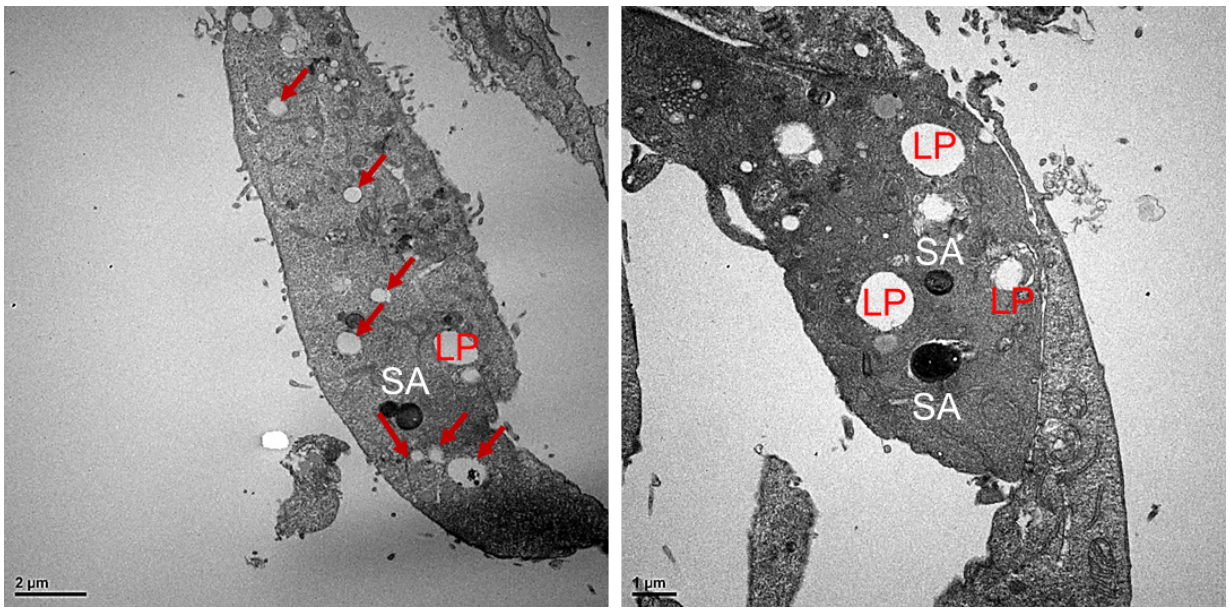
**SI5**. Gating strategies, dot plots, and overlay histograms obtained by flow cytometry.



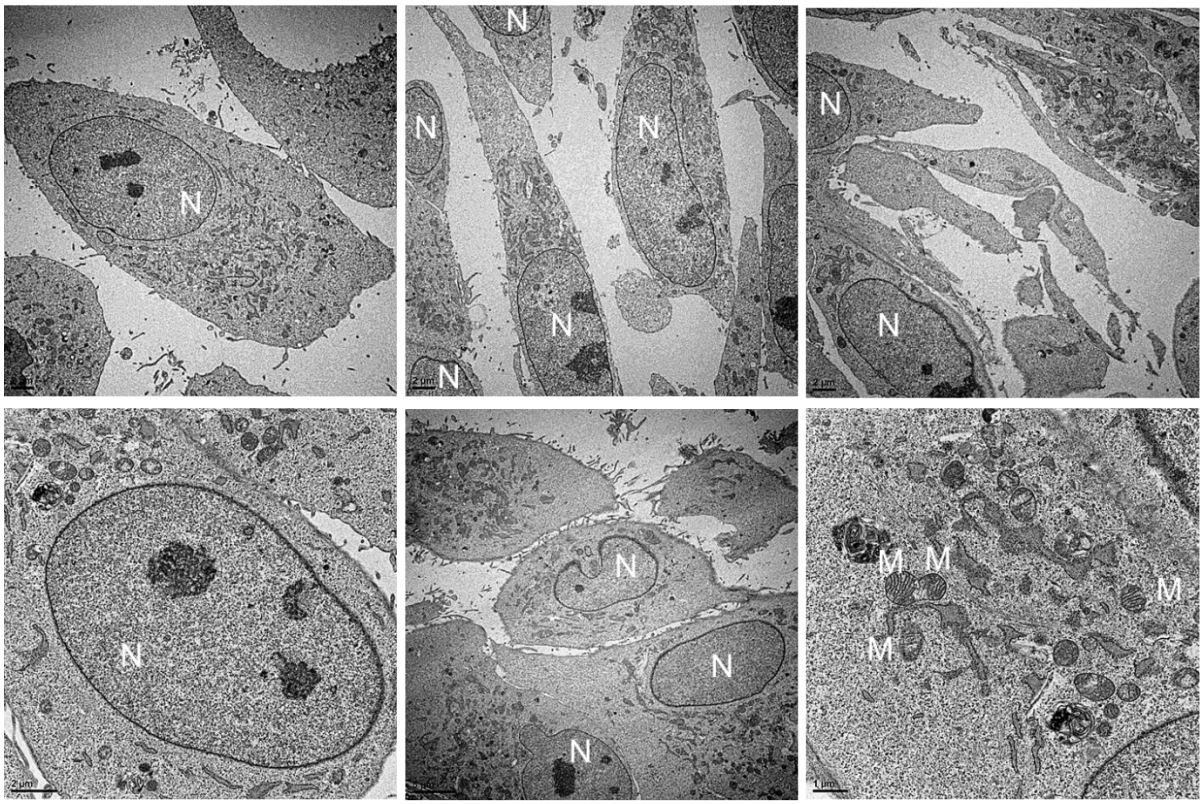

***Color code*** **Alone MG63 cells** **PLGA particles**
**Liposomes** **LipoParticles**
**Liposomes-PEG** **LipoParticles-PEG**

100

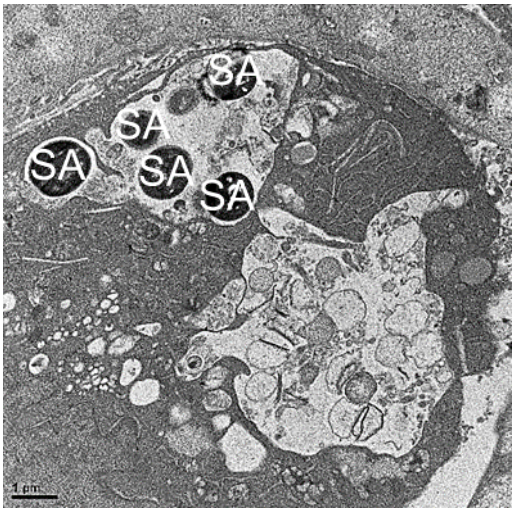
**SI6**. TEM images of ultrathin sections (100 nm) obtained by ultramicrotomy of MG63 osteoblast cells infected by *intracellular Staphylococcus aureus* (**SA**) incubated with LipoParticles (**LP**).



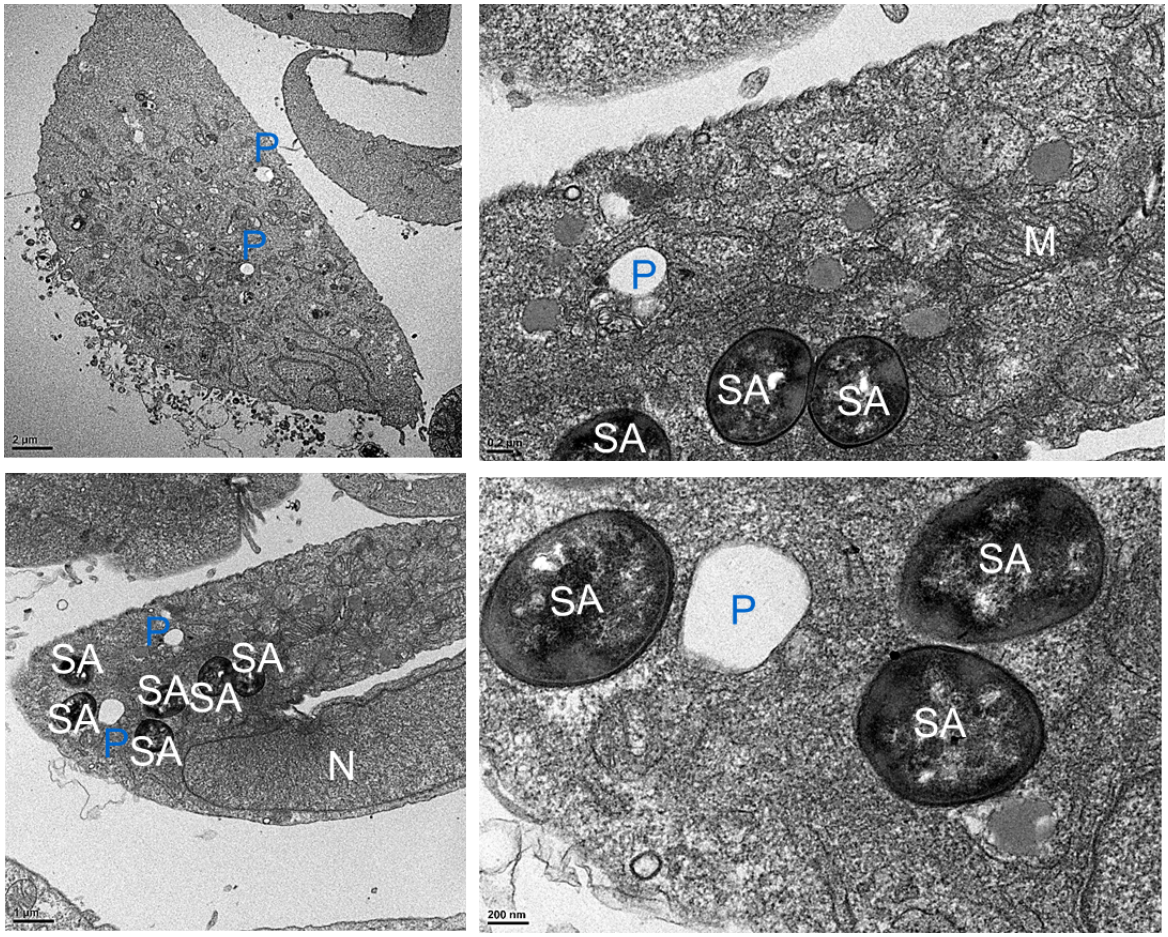
**SI7**. TEM images of ultrathin sections (100 nm) obtained by ultramicrotomy of MG63 osteoblast cells (**N** = nucleus, **M** = mitochondria) non-infected by intracellular *Staphylococcus aureus*.



**SI8**. TEM image of an ultrathin section (100 nm) obtained by ultramicrotomy of MG63 osteoblast cells infected by intracellular *Staphylococcus aureus* (**SA**).



**SI9**. TEM images of ultrathin sections (100 nm) obtained by ultramicrotomy of MG63 osteoblast cells (**N** = nucleus, **M** = mitochondria) infected by intracellular *Staphylococcus aureus* (**SA**), incubated with PLGA particles (**P**).



**SI10**. TEM images of ultrathin sections (100 nm) obtained by ultramicrotomy of PLGA particles (**P**, at left), and DPPC/DPTAP/DPPE-PEG5000 8/90/2 (molar ratio) LipoParticles (**LP**, at right). The samples were post-fixed with osmium tetroxide (1% w/v in water), so extracellular PLGA particles and extracellular LipoParticles particles appear in grey, contrarily to intracellular PLGA particles and intracellular LipoParticles (in white in the other images implying MG3 osteoblast cells) which were less in contact with osmium tetroxide.