

News Release

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Merck KGaA, Darmstadt, Germany, and Nanoco Sign Agreement on Eco-Friendly Quantum Materials for Displays

- **Cadmium-free quantum dots enable ultra-bright displays with a substantially extended color range**
- **Merck KGaA, Darmstadt, Germany, enters into a non-exclusive license agreement to market Nanoco's material to its broad customer base in the display industry**

Darmstadt, Germany, August 1, 2016 – Merck KGaA, Darmstadt, Germany, a leading science and technology company, today announced the signing of a worldwide material supply and licensing agreement with the UK-based Nanoco Group – a world leader in the development and manufacture of cadmium-free quantum dots and other nanomaterials. The license allows Merck KGaA, Darmstadt, Germany, to immediately start marketing Nanoco's cadmium-free quantum dots and to ultimately establish its own production facility to meet growing market demand.

"The agreement is in line with our strategy to sustainably secure its position as the global market and technology leader in display materials. With cadmium-free quantum dots, a remarkable increase in the color range and a significant reduction in power consumption can be achieved. These cadmium-free quantum dots are eco-friendly and also complement our product portfolio for the display industry," said Walter Galinat, member of the Merck KGaA, Darmstadt, Germany, Executive Board and CEO of Performance Materials. "The license agreement with Nanoco will strengthen our position in quantum materials research, for which we laid the foundations by acquiring Qlight Nanotech of Israel last year."

Page 1 of 3



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News Release

The financial details of the agreement are not being disclosed, but Nanoco will receive a license fee and royalties on Merck KGaA, Darmstadt, Germany's sales of the Nanoco cadmium-free quantum dots Merck KGaA, Darmstadt, Germany, manufactures. In line with Nanoco's commercialization strategy in the display market, this agreement is non-exclusive. Merck KGaA, Darmstadt, Germany, will begin marketing Nanoco's technology in the near term by selling cadmium-free quantum dots manufactured at Nanoco's expanded production plant in Runcorn, UK. The license allows Merck KGaA, Darmstadt, Germany, to establish its own production facility for cadmium-free quantum dots in line with global market demand at a later point in time. Michael Edelman, Nanoco's Chief Executive Officer, added, "This agreement with Merck KGaA, Darmstadt, Germany, is another major endorsement of the world-class quality of our cadmium free quantum dot technology. We are convinced that Merck KGaA, Darmstadt, Germany, can leverage its position in the display industry with these innovative materials."

Advantages of quantum materials

Quantum materials offer a substantial additional benefit when they are used as color converters in the light source of liquid crystal displays. In conventional displays, the colors blue, green, and red are filtered out of the original white light of the LED light source. A great deal of light is lost in this process. Because a blue LED in combination with red and green quantum materials only generates the blue, green and red light that is perfectly transmitted through the filters, there is much less absorption. This increases the display's brightness, thus reducing electricity consumption and leading to much purer and potentially stronger colors.

About Nanoco Group

Nanoco is a world leader in the development and production of cadmium-free quantum dots and other nanomaterials for use in multiple applications including LC displays, lighting, solar cells and bio-imaging. In the display market, Nanoco has a non-exclusive manufacturing and marketing licensing agreements with The Dow Chemical Company and The Wah Hong Corporation of Taiwan. Nanoco also has a strategy of direct sales in display and in its other target markets, including lighting. Nanoco was founded in 2001 and is headquartered in Manchester, UK. It has production facilities in Runcorn, UK, and a US subsidiary, Nanoco Inc, based in Concord, MA. Nanoco also has business development executives in Japan, Korea and Greater China. Its technology is protected worldwide by a large and growing patent estate. Nanoco is listed on the main market of the London Stock Exchange and trades under the ticker symbol NANO. For further information please visit: www.nanocogroup.com.

News Release

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Merck KGaA, Darmstadt, Germany, is a leading science and technology company in healthcare, life science and performance materials. Around 50,000 employees work to further develop technologies that improve and enhance life – from biopharmaceutical therapies to treat cancer or multiple sclerosis, cutting-edge systems for scientific research and production, to liquid crystals for smartphones and LCD televisions. In 2015, Merck KGaA, Darmstadt, Germany, generated sales of € 12.85 billion in 66 countries.

Founded in 1668, Merck KGaA, Darmstadt, Germany, is the world's oldest pharmaceutical and chemical company. The founding family remains the majority owner of the publicly listed corporate group. Merck KGaA, Darmstadt, Germany, holds the global rights to the Merck KGaA, Darmstadt, Germany, name and brand. The only exceptions are the United States and Canada, where the company operates as EMD Serono, MilliporeSigma and EMD Performance Materials.