

Where Are the Products of Nanotechnology?

After over a decade and billions of dollars of investments in nanoscience and nanotechnology in the United States and around the world,^{1,2} we are often asked: where are the resulting products and when will they be in our hands? Last month in Denver, at our most recent editors and editorial advisory board meetings, we challenged ourselves to address these questions and to accelerate the development of nanoenabled products by helping to guide the field. Our loyal readers know that we have touched on these issues in editorials and forward-looking articles from the start of *ACS Nano*. We have also sought to define what is required to describe materials, devices, efficacy, and other properties so that fair comparisons across research teams can be made and so that we can all understand what constitutes real advances.^{3–5} Working with leaders in these areas with a wide range of perspectives, we will share our experiences and compare efforts around the world.

In one prominent example, while many of us see extraordinary opportunities in medicine, in both diagnostics and therapeutics, a number of barriers stand between verification of efficacy and safety as well as regulatory approval. We will lay out these challenges and explore successes and ongoing efforts. Advances and hurdles in nanotherapeutics both offer insight for many areas where strategic thinking early in research and development can make significant differences in the time and effort required to commercialization, in this case to make it to and through clinical trials and eventually to patients.^{6–8}

One of the challenges that led to the proposal for and initiation of the BRAIN Initiative⁹ was from the Office of Science and Technology at the White House. As a community, we were asked how we might apply what we have learned both for products and for accelerating advances in other fields. We believe that nanoscale approaches to neuroscience represent just one of many such opportunities that will leverage and drive our approaches, tools, and methods.

In all these areas, new nanoscale tools enable insight, answers, and new questions.^{9,10} The targeted development of new tools led to the biotechnology revolution and initiated our efforts in nanoscience and nanotechnology. While super-resolution microscopy and its inventors and developers garnered honors in 2014, many other tools are required to understand and to control the nanoscale world. We will help identify those needs and publish the successes when the needed tools are invented, developed, and applied.

Part of this greater effort is to fill the void in the public perception of what nano is. For example, while there are on the order of 2 billion smart phones in the world, many people see them as the product of designers rather than the nanotechnologists who have populated the extraordinary insides that lie beneath the sleek covers. We are in danger of letting science fiction writers define what is nano. *That* could be a disaster of epic proportions.

Accelerated advances and public awareness will not only improve the world around us but also elicit support for nanoscience and nanotechnology. We hope you will join us in these efforts and look forward to hearing your thoughts.

Announcements. The 2015 *ACS Nano* award lectures will return to ChinaNano this September. As in previous years, one winner will be selected from each of the Americas, Europe/Middle East/Africa, and Asia/Pacific regions. Our editors, those on the selection committee, and previous winners are not eligible. Nominations are now open through May 15, 2015.¹¹

Disclosure: Views expressed in this editorial are those of the author and not necessarily the views of the ACS.

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Published online April 28, 2015
10.1021/acs.nano.5b02224

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Acknowledgment. We would like to thank our editors, editorial advisory board, and ACS staff for contributing to these and our upcoming discussions.



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Editor-in-Chief

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