Electronic Supplementary Material (ESI) for Environmental Science: Nano.

Supplementary information for:

Expert perspectives on potential environmental risks from nanomedicines and adequacy of the current guideline on environmental risk assessment

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Sample Questions

1. The focus of nanomedicine developers has been to design nanocarriers which can evade the biological barriers in the body and deliver a payload of drug to the target site

    a. In your opinion, is there a possibility of any environmental hazards and risks from such products?

    b. What might be the potential hazard and exposure scenarios?

    c. Are you aware of the existing environmental risk assessment guidelines for pharmaceuticals?

        If yes,

        i. Do the test methods and protocols mentioned therein adequate for nanomedicines? What might be the limitations? How can they be improved?

        ii. More specifically, in your opinion, is octanol-water partition coefficient (log K_{ow}) the right surrogate for bioaccumulation with respect to future sophisticated materials based on polymers?

        If no,

        i. Are the existing risk assessment protocols fit-for-purpose for nanomaterials in general? What are the limitations? How can they be improved?

2. Do you think nano-enabled medical devices are likely to pose a threat to the environment? (e.g., AuNPs and SWCNT in devices to detect cancer from breath; silicon nanowires)

Table S1 List of expert stakeholders as per category interviewed along with dates of the interviews

Discipline or category	Name	Date of interview
Nanomedicine scientists	NMS01	12 May 2011
	NMEn02	12 May 2011
	NMS03	16 May 2011
	NMS04	17 May 2011* & 29 July 2011
	NMS05	8 September 2011
	NMS06	1 November 2011
	NMEn07	2 December 2011
	NMS08	17 January 2012
	NMS09	27 January 2012
	NMEn10	27 January 2012
	NMS11	14 March 2012
	NMS12	14 March 2012
	NMEn 13.1+ NMS13.2	30 March 2012
	NMS14	29 May 2012
	NMS15	16 July 2012
	NMS16	16 October 2012
	NMEn17	31 October 2012
	NMS18	2 November 2012
	NMS19	6 November 2012
Total		***20***
Toxicologists	ETOC1	15 February 2012
	HTOC1	13 August 2012
	HTOC2	15 August 2012
	ETOC2	5 September 2012
	ETOC3	8 October 2012
	HTOC3	19 October 2012
	ETOC4	23 October 2012
	HTOC4	30 October 2012
	ETOC5	5 December 2012
Total		***9***
Social scientists	SS01	11 September 2012
	SS02	17 October 2012
	SS03	24 October 2012
	SS04	25 October 2012
	SS05	09 November 2012‡ & 08 July 2013
	SS06	14 November 2012
	SS07	15 November 2012
	SS08	11 July 2013
	SS09	2 August 2013
Total		***9***

Regulatory agencies and policymakers	Regulator 01	14 November 2011
	PP1.1	14 December 2011
	PP1.2	14 December 2011
	PP2.1	20 December 2011
	PP2.2	20 December 2011
	Regulator 02 (+1)	27 January 2012
	Regulator 03 MHRA	2 February 2012
	Regulator 04 (+1)	24 August 2012
	Regulator 05	13 November 2012
Regulatory toxicologists	PP2.3	20 December 2011
Total		***10 (+2)***
Funding agencies	RC01 (+1)	24 April 2012
	RC02	22 May 2012
	RC03	6 June 2012
	RC04	19 June 2012
	RC05	15 October 2012
	RC 6.1	15 July 2013
	RC 6.2	12 September 2013
Total		***7 (+1)***
Industry	Industry 01	3 May 2012
	Industry 02	9 July 2012
	Industry 03	13 July 2012
	Industry 04	12 November 2012
	Industry 05	12 July 2013
	Industry 06	17 July 2013
	Industry 07	30 July 2013
	Industry 08	7 August 2013
Total		***8***

*The recorder containing the first interview with NMS 04 was lost. Hence, a repeat interview was done.
‡Due to Skype disturbances, there was lot of noise in the recoding. Hence, a repeat interview was done.
Note: When two or more interviewees were interviewed from the same organisation, the numbering is X.1, X.2, and X.3 and if there were more than one expert during the interview, the additional expert is shown in brackets.
Abbreviations: NMS, nanomedicine scientist; NMEn, nanomedicine entrepreneur; HTOC, human toxicologist; ETOC, ecotoxicologist; RC, Research Council; SS, Social scientist; PP, policymaker.