

# Whose ethics of knowledge? Taking the next step in evaluating knowledge in synthetic biology: a response to Douglas and Savulescu

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## ABSTRACT

The recent proposal by Douglas and Savulescu for an ethics of knowledge provokes a renewed consideration of an enduring issue. Yet, the concept raises significant challenges for procedural and substantive justice. Indeed, the operationalisation of 'an ethics of knowledge' could be as alarming as what it seeks to prevent. While we can acknowledge that there is, and surely always will be, potential for misuse of beneficial science and technology, a contemplated conception of what we ought to not know, devise or disseminate sets before us an enormously complex task. This essay challenges an ethics of knowledge to respond to concerns of procedural and substantive justice. While the concept has a certain appeal, it does not appear to adequately address certain fundamental issues as it is currently presented. Here, the author invites consideration of two primary points: (1) who should decide, based on whose interests? and (2) could such an exercise actually be effective in achieving its goal?

## INTRODUCTION

The announcement by Craig Venter of a modified replication of a bacterium with a synthetic genome<sup>1</sup> has inspired a range of reflections about possible ethical issues raised by synthetic biology often focusing on what can go wrong with this new and potentially powerful technological development. Among the concerns most often articulated are 'playing God', 'biosecurity/bioterrorism', 'biosafety' and the creation of 'novel life forms' that may not fall comfortably into existing categories. Underlying the biosecurity and bioterrorism concern is what has come to be known as the 'dual use' dilemma: a concern that scientific developments achieved for beneficial purposes might be misused for malicious purposes. One of the recent responses to this dilemma in the context of synthetic biology was the proposal for an 'ethics of knowledge'.<sup>1</sup> This ethics of knowledge would 'contemplate not just the means by which knowledge is produced, but also what kinds of knowledge should be sought and disseminated'.

While this offering by Douglas and Savulescu<sup>2</sup> provokes renewed consideration of this issue, the attempt to 'resolve' this enduring issue through a kind of restriction on what knowledge should be sought and disseminated as ascertained by ethicists and presumably others raises several significant issues ranging from procedural issues to substantive rights. As Douglas and Savulescu<sup>2</sup> point out, ethicists may, indeed, have a contribution to make in thinking about whether certain knowledge should

not be sought and disseminated. But an abundance of questions remain that would challenge what an ethics of knowledge would look like in practice. Without proper attention to procedural issues and substantive rights (eg, free speech), the operationalisation of an ethics of knowledge could be as alarming as what it seeks to prevent. While we can certainly acknowledge that there is, and surely always will be, a potential for misuse of beneficial science and technology, a contemplated conception of what we ought to not know, devise or disseminate sets before us an almost impossibly complex task both practically and conceptually. Moreover, it would seem that an ethics of knowledge could function in a just manner only theoretically. This essay challenges an ethics of knowledge to address two key considerations that arguably could determine the advisability of developing such a framework that would guide the production and dissemination of knowledge based on potential misuse: (1) who should decide, and based on whose interests? and (2) could such an exercise actually be effective in achieving its goal in preventing misuse of new knowledge or technologies? Only when these questions are satisfactorily answered can we begin to think about whether an ethics of knowledge is, indeed, possible, and more importantly, whether it is desirable.

## WHO DECIDES?

According to Douglas and Savulescu, 'ethicists are uniquely placed to settle such evaluative questions' (P 690),<sup>2</sup> referring to the weighing that needs to be done in evaluating competing interests and values. They rightly note that the synthetic biology debate 'has been dominated by scientists', with ethicists being less prominent. It appears that Douglas and Savulescu<sup>2</sup> seek to establish the need for ethicists to enter this debate in a more robust and dedicated way given that ethicists currently seem marginally engaged in such questions. This is a reasonable point, and in view of the contribution of ethicists in clarifying underlying values implicated by various scientific advances, for example, genetics and nanoscience, this proposal would seem to make sense. However, such an abstract engagement loses a great deal when conducted in a purely acontextual manner.

Even as we recognise the value of the contribution of ethicists in 'clarifying the values at stake' and, perhaps less readily, recognise the usefulness of their arguments as to how they should be weighed (P 690),<sup>2</sup> it will still be necessary for the ethicist to justify the relevance of an acontextual analysis. In some instances, context may make a theoretically

fair procedure, tragically and indefensibly unfair. Just as the 'original position' and the veil of ignorance presents as a reasonable approximation of fair procedure, the veritable impossibility of implementation renders it considerably less viable as an approach to resolution of questions of fairness.

In the field of applied ethics, a theory or concept once applied arguably must operate to achieve the goals of the theory. Thus, while the concept of an ethics of knowledge holds some appeal, it is the operationalisation of it that is highly concerning if questions of procedural fairness and distributive justice are not adequately addressed before embarking on a path of policing the production and dissemination of knowledge. Douglas and Savulescu<sup>2</sup> present three possible broad approaches to 'governance' of misuse: (1) *laissez faire*, (2) required consideration by scientists and (3) required independent consideration. They then rightly raise the question of which kind of consideration or test regarding the risk of misuse should be applied, and stress the importance of clarifying and weighing of values (P 690) that can lead to informing risk reduction strategies (P 692).<sup>2</sup>

But, we must ask whether an ethics of knowledge can truly be arrived at through abstract analysis at all. Although the clarification and weighing of values by ethicists in abstract analysis may have a place, for applied scientific knowledge a range of factors that are not necessarily within the domain of ethicists should also be represented in any decisions to regulate pursuit of knowledge. For example, in seeking to prevent potential misuse, it would seem essential to assess such competing factors as likelihood (imminence regarding bad actors and bad acts) on the one hand and value of the purported benefit of scientific pursuit and its impacts on lives, communities and the environment, on the other. In the case of fundamental science where ultimate use may be largely unascertainable (ie, of unknowable or unknown benefit), the value of knowledge and ungrounded speculative benefit must provide the counterbalance for the possibility of misuse in such a deliberative abstract contemplation. In both cases, it is necessary to consider the world as it is, in all the ways that the science or technology will intersect with society. Given the complexity and multitude of impacts, an ethics of knowledge *cannot* be neutral; it will accommodate the interests of some and subordinate those of others.<sup>3</sup> The value of the ethicists' arguments for weighting competing values as a contribution assumes that those making these arguments can and will present the full spectrum of arguments. As Douglas and Savulescu<sup>2</sup> observe, ethicists have not flocked to the ethical challenges of addressing misuse which means that only those arguments by the self-selected few will inform the larger discussion and are unlikely to be representative. Indeed, in the absence of a robustly inclusive process, the views of some will dominate the discussion, as is often the case in discussion about emerging technologies. This is not a flaw in the proposal by Douglas and Savulescu,<sup>2</sup> but rather is a logical consequence of putting an ethics of knowledge on the agenda in the current ethics landscape. And, indeed, uneven representation of ideas is not necessarily a flaw except for the fact that regardless of intent, an ethics of knowledge in practice would promote a set of values, interests and goals that are not uniform across societies.

Indeed, for a fully robust and scientifically grounded debate, participation from a range of perspectives would be necessary. This would include and might possibly even begin with scientists given their generally greater awareness of possibilities and, in some ways, probabilities. That is, whether a particular engineered modification results in a property that can easily be copied or modified to produce great harm is first and foremost a scientific question. Clearly, Douglas and Savulescu<sup>2</sup> seem to

envision a scientifically grounded contribution by ethicists. But this must stand next to a recognition that policy development requires a variety of disciplinary inputs in order to arrive at contextually appropriate and optimally effective approaches to governance. Thus, an ethics of knowledge would constitute but one piece of a larger effort to ascertain when scientific knowledge should not be pursued or disseminated.

### IN WHOSE INTERESTS? ISSUES OF LEGITIMACY

Any consideration of an ethics of knowledge must ask the procedural question, 'Whose interests will be represented at the table when these issues are decided?' In other words, on what basis and by what metric is an ethics of knowledge issue analysed, contemplated and devised? Douglas and Savulescu<sup>2</sup> propose that ethicists should be at this table, but unfortunately do not attempt to address the issue of who else should be there. This omission is regrettable because aspects of representation and expertise require careful consideration and attention in order to establish the legitimacy of any ethics of knowledge. Again, this does not challenge the claim of Douglas and Savulescu<sup>2</sup> that ethicists should be at the table; it does challenge the proposal itself to establish its legitimacy through an adequately democratic process. Without this type of legitimacy, certain interests will be present and represented at this table while others will not be, resulting in a lack of procedural fairness and a cascade of related consequences.

Any serious proposal of an ethics of knowledge must reckon with the concern about what happens to the interests of marginalised individuals who, almost by definition, will not be at this table where an ethics of knowledge is developed or deployed. While justice has garnered a prominent place in much of the ethics discourse, the lived experience of injustice can generate a perspective that sometimes is not easily understood or even seen, let alone considered, by the well-intended thoughtful observer. Further consideration of the concept must embrace the attendant responsibility and acknowledge that the absence of representation of the interests of the marginalised can make a considerable difference in the evaluation of what constitutes a fair balance between benefit and potential harm.<sup>4</sup> For example, if, as the authors state, synthetic biology presents an opportunity for reflection on the need for an ethics of knowledge, then an analysis of synthetic biology could conceivably conclude that the potential misuse outweighs benefits. Consider the development of artemisinin, a cost-effective antimalarial drug using synthetic biology that has the potential to avert substantial loss of life in developing countries.<sup>5</sup> Clearly, the interests of differently situated populations are not the same. In this instance, without the protection against infectious disease that would be facilitated by this technology, those who suffer the often fatal effects of malaria would essentially become the 'victims' of an ethics of knowledge, while another population would feel safer.

### WOULD AN ETHICS OF KNOWLEDGE ACTUALLY ACHIEVE ITS OBJECTIVE?

It is also important to consider whether an ethics of knowledge would actually further the societal agenda, that is, could it be effective in preventing misuse of new knowledge while preserving sufficient opportunity for research and development that could make significant contributions to health and well-being or a better functioning society? Whether such a gate-keeping concept in the form of a pronouncement against pursuit or dissemination of certain knowledge would actually prevent

misuse for malicious purposes is questionable. First, it would seem necessary to distinguish between 'seeking' and 'disseminating' knowledge as they are two distinct endeavours that raise entirely different conceptual and practical issues. While the threshold for restricting pursuit could be quite high in that a necessarily limited foresight or vision could unduly circumscribe opportunities for progress and biomedical advancement, the threshold for restricting dissemination could be rather low if there are genuine risks, whether specifically identifiable or not, if they could be justified on proper risk containment grounds.

It would seem that Douglas and Savulescu<sup>2</sup> may recognise this concern in that they eventually suggest that the focus should be on 'downstream solutions' (P 691).<sup>2</sup> Indeed, until issues of operationalisation of an ethics of knowledge are worked out, if ever, the focus on downstream solutions may provide the most viable way forward. But given that dissemination is 'downstream' of knowledge pursuit and production and presents an altogether distinct set of issues from pursuit of knowledge, the scope of downstream in this context will also need to be determined to avoid undue interference with the pursuit of knowledge.

But if we return to an amended question of whether a prohibition against pursuing or disseminating a particular type of knowledge or technology would actually prevent (or at least substantially minimise) misuse, the answer is still less clear particularly as it pertains to pursuit. The case of stem cell research can serve as a useful illustration of the persistence of restricted pursuits, particularly if the pursuit is not uniformly prohibited. In response to restrictions in that field, non-complying actors merely relocated or acted covertly. In short, such restrictions arguably regulate only those who allow themselves to be regulated by them. A prohibition against dissemination may also be unpromising as a mechanism for deterring malicious actors although it does restrict opportunities for access. As the 2001 anthrax case showed, restricted dissemination was of no consequence as the bioterrorist act was perpetrated by a Defense employee presumably with legal access.<sup>6</sup>

Clearly, we strive to prevent the possibility of useful scientific discoveries 'falling into the wrong hands'. Even discoveries of modified viruses that show indications of selectively killing cancer cells<sup>7</sup> could also raise issues regarding safe pursuit of knowledge, but conceivably be balanced out by benefit if certain types of safeguards are put in place. Would we be willing to forego the potential benefit in order to *feel* safer, even though it is not clear that we actually would *be* safer? In short, whether an operationalised ethics of knowledge could prevent or substantially reduce harmful misuse is inevitably an empirical question. But it is a question that must be asked in the context of what would be foregone for the sake of perceived or real 'safety'. Otherwise, we could find ourselves in the situation of allowing the fears of those with one set of interests dictate the research agenda at the expense of those with another set of equally valid interests, for example, combating disease.

## CONCLUSIONS

The call to bioethicists to engage in an ethics of knowledge presents an interesting label for an age old query. 'Forbidden knowledge' has long been a concept that has variously remained with us for centuries, even millennia. It is fair to suggest that ethicists also come to the table to contribute their expertise to

the kind of robust deliberation that would be essential to devising an ethics of knowledge that carries adequate legitimacy. Justice demands that the process involves consideration of the interests of all members of society, not only those who are near or at the table. Further consideration of this proposal would need to address the issue of participation and the deliberative process in the creation of an ethics of knowledge. Second, since it is highly unlikely that any truly objective metric can be devised due to the range of candidate values in a pluralistic society, the outcome of any such analysis of an ethics of knowledge is, in many ways, determined by the metric that is chosen, which, in turn, is determined by who chooses that metric. Finally, it is not at all clear that an ethics of knowledge will do much more than 'regulate' the behaviour of law-abiding persons, not those who would be inclined to engage in malicious behaviour. Indeed, it is not clear where an ethics of knowledge really gets us.

To meet the above challenges, an ethics of knowledge must also involve a robust framework for knowledge priorities that could better serve society. Resource allocation gets at some of the issues, but Douglas and Savulescu<sup>2</sup> have pointed to a more fundamental question in asking which knowledge we should not have and whether ethicists can contribute to resolving that issue. This essay suggests that the answer may be yes, but only if other key questions are thoroughly addressed first. Nevertheless, with some tweaking and stepping back from a dichotomous approach, we may find that we move instead towards an *ethics of knowledge priorities* that would ask the question about which resources we should generate and which should be our priorities, and under what conditions. Indeed, such a query may well take into consideration the possibility of misuse, but justice requires that this be only one of a range of considerations in a robustly deliberative process. To be sure, we should not be reckless or uncurious in our scientific pursuits, but it is imperative that we evaluate our products and processes from a perspective that does not render invisible the perspectives of those who are not at the table. Consequently, to establish the necessary legitimacy and avoid the needless creation of a potentially oppressive 'knowledge regime', further consideration of an ethics of knowledge will need to rigorously address issues of procedural fairness and substantive rights.

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