Editor's LETTER

ACS chemical biology



# Instituting Greener Chemistry

Many of the products we buy, use, and even eat on a daily basis exist because of chemical innovations. So given our inextricable link to chemistry, how can we ensure that the very chemicals that we derive benefits from do not cause more harm (to the environment and ourselves) than good?

This is the primary objective of the ACS Green Chemistry Institute (GCI), a not-for-profit corporation that joined the ACS in 2001 (*1*). This venture was established so that these two entities could work toward implementing chemical products and processes that limit the generation and use of hazardous chemicals. GCI funds research to develop new technologies, furthers education on all levels, assists companies in integrating new technologies, organizes conferences, and fosters an international presence to further these aims.

GCI offers "Twelve Principles of Green Chemistry" (*2*) that help to guide any chemist seeking to introduce a product or method into widespread use. For example, the first principle is to minimize waste. For example, one can design synthetic processes that incorporate as much of the starting material into the final product as possible, thereby minimizing the resultant waste stream.

Another principle proposed by GCI is to minimize the use of solvents and separation agents wherever possible. Some pharmaceutical companies have taken this advice to heart, with rewarding results. The head of Pfizer's green chemistry division claims that the company has saved "tens of millions" of dollars in the production of two of its highest-profiting drugs by reducing the use of organic solvents (*3*). As newer processes and technologies become available, this type of creative solution that links environmental and economic benefits will undoubtedly speed the uptake of green chemistry within industry.

GCI has a vast toolbox of resources so that known alternatives are readily available, and efforts are not duplicated for separate enterprises. In cases where better alternatives are not known, GCI supports innovation to discover new ones. Once a path is chosen, they continue to work with industry in the implementation of these alternatives, offering extensive training with world experts.

Education of researchers and the public figures largely in the mission of GCI, and they are dedicated to promoting the cause of green chemistry both domestically and through international chapters. In June, they will be hosting the 12th Annual Green Chemistry and Engineering Conference (*4*) in Washington, DC. This will be an excellent opportunity to learn and discuss how green chemistry and engineering can be used to provide sustainable paths toward more environmentally friendly chemistry. As chemistry continues to play a vital role in our lives, such strategies will be indispensable for the well-being of the planet, and its inhabitants.

Eric Martens
Managing Editor, *ACS Chemical Biology*

## REFERENCES

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