

## EDITORIAL

# A changing time: the International Society for Cellular Therapy embraces its industry members

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### Abstract

The last decade has seen a dramatic rise in the development of new cellular therapeutics in a wide range of indications. There have been acceptable safety profiles reported in early studies using blood-derived and adherent stem cell products, but also an inconsistent efficacy record. Further expansion has been hindered in part by a lack of capital (both private and public) and delayed entry into the cell therapy space by large healthcare and pharmaceutical companies, those members of the industry most reliably able to initiate and maintain advanced-phase clinical trials. With recognition that the International Society for Cellular Therapy (ISCT) is uniquely positioned to serve the global translational regenerative medicine research community as a network hub for scientific standards and policy, the ISCT commissioned the establishment of an Industry Task Force (ITF) to address current and future roles for industry. The objectives of the ITF were to gather information and prioritize efforts for a new Commercialization Committee (CC) and to construct innovative platforms that would foster constructive and synergistic collaborations between industry and ISCT. Recommendations and conclusions of the ITF included that the new CC: (1) foster new relationships with therapeutic and stem cell societies, (2) foster educational workshops and forums to cross-educate and standardize practices, (3) create industry subcommittees to address priority initiatives, with clear benchmarks and global implementation, and (4) establish a framework for a greater industry community within ISCT, opening doors for industry to share the new vision for commercialization of cell therapy, emphasizing the regenerative medicine space.

### Introduction

The International Society for Cellular Therapy (ISCT) is a global forum of experts, working in the field of cellular therapy, who drive educational and regulatory activities in 40 countries. Its members include investigators, clinicians, technologists, regulators and industry partners. As such, ISCT is uniquely positioned to serve the global translational research community as a network hub for scientific standards and policy in practicing cell therapy in

regenerative medicine. Thus ISCT can serve as a vital bridge between scientific stem cell societies and clinical development partners by engaging policy makers, regulatory agencies, scientists and industry and encouraging an informed and open-code development philosophy.

All recognize that the last decade has seen a dramatic rise in the development of new cellular therapeutics. There have been good safety profiles reported in early clinical studies using blood-derived

and adherent stem cell products, but also an inconsistent record of therapeutic benefit. Issues have been raised that this may in part reflect a lack of co-ordination around cell characterization and potency determination, and a lack of co-ordinated clinical treatment approaches, endpoint design and shared clinical data registries. These issues are compounded by difficulties in global communication and exposure amongst the technologists and scientists developing these practices. As a consequence, continued clinical development and adaptation of new therapeutics has been hampered by a lack of capital (both private and public) and delayed entry into the cell therapy space by large healthcare and pharmaceutical companies, those members of the industry most reliably able to initiate and maintain advanced-phase clinical trials.

For the future, ISCT has the development experience and knowledge, through its membership base, to co-ordinate solutions to these problems and significantly advance the field of regenerative medicine. Currently ISCT is in a position to provide translational guidance in this space by integrating new science and technology advances in co-ordination with those vested in late-stage clinical development of new cellular therapeutics. This can be achieved by creating or catalyzing the development of effective networks between the participants and providing forums and tools to harmonize and standardize clinical practice in cell therapeutics.

However, obstacles exist. As disease-specific societies embrace the cell therapy field, and other national and international associations and societies adopt cell therapy as its principal sphere of influence, there are potential threats to ISCT demonstrating its ability to remain the leader in this translational space, additionally creating a dilution affect on the ability to create harmony and standardization of practice. Thus ISCT has elected to pursue a greater strategic alignment with its industry members, recognizing that the future of cell therapy is completely dependent on late-stage clinical development and that this will be facilitated by ISCT playing a central role in the creation of forums for discussion of shared concerns and catalyzing the development of consensus standards.

In this fashion, ISCT will assist the commercialization of cellular therapy, recognizing that true commercialization depends upon the translational scientific community, regional regulatory and policy institutions, and technology support and capital investment from industry, all of which are heavily represented within the ISCT membership.

### **Establishment of an Industry Task Force**

As part of a strategic plan established within the ISCT, an Industry Task Force (ITF) was convened

to address the current and future roles for industry within ISCT. The ITF was composed of professionals participating in commercialization efforts (with an emphasis on international participation) and designed to include institutional cell-processing laboratory experts, translational physicians in hematology/oncology and new therapeutic domains (e.g. cardiac), contract manufacturing and cell-processing centers, service providers and reagent industry members, cell therapy industry members, large pharmaceutical and healthcare organizations evaluating entry to the cell therapeutic arena, academic thought leaders, as well as consultants from the investment community. The objectives of the ITF were to:

1. gather information and assess the value and prioritization of efforts, by polling industry participants of ISCT, the financial community and selected advisers
2. evaluate the structure of ISCT subcommittees, with recommendations for industry participation and function
3. define expectations and value in the relationship between industry and ISCT, with operational recommendations
4. recommend an action plan and benchmarks to assess industry policy implementation on a going-forward basis
5. identify an appropriate role for industry input to the ISCT executive team.

### **Results**

#### *Objective 1: information from membership and value assessment*

A questionnaire to ascertain industry perspectives of the value of ISCT and ISCT membership was distributed within the commercialization community. ISCT was validated as a network hub for communication and standardization within the cell therapy and regenerative medicine space. Desire was expressed for attention to new cell types and application to new disease areas. Priority was desired for:

- cell characterization standards
- cell processing and manufacturing standards and technology assessment
- assisting existing ISCT cell and therapeutic committees to develop these standards
- creating collaborative relations with ISCT committee members and key opinion leaders (KOL) in therapeutic disease societies and stem cell basic science societies
- expanding knowledge and educational platforms on specific cell types and treatment foci, for

example immunotherapy recognizing the current activity in T regulatory cells and T-cell therapies, dendritic cells and adherent stem cell immunomodulation

- partially addressing unmet patient needs by facilitating community evaluation of therapeutics based on newly emerging cell-based technology.

*Objective 2: redefining a Commercialization Committee and relationships within ISCT*

To achieve operational success for a Commercialization Committee (CC) within ISCT, it was felt necessary to construct subcommittees that would address unmet needs and establish a strategic plan with a detailed, step-wise approach to ascertain value-added status as well as success in achieving long-term goals. The priority subcommittees were defined as:

- Process and Product Development Technology
- Business Models, Reimbursement and Cost of Goods Sold (COGS) (with potential for a future spin-out Manufacturing committee)
- Education
- Clinical Development and New Product Introduction

Additionally, strong relationships and cross-talk with other ISCT scientific stem cell committees (e.g. the Mesenchymal Stem Cell, Hematopoietic Stem Cell and Unrelated Cord Blood Committees) and therapeutic area committees (e.g. Cardiovascular) were believed necessary. These specialized stem cell committees can provide state-of-the-art feedback with the industry subcommittees on cell characterization standards, and both groups can contribute to position documents and forums evaluating translational opportunities and novel cellular products. Integration with therapeutic area societies would drive ISCT's success in translational medical development and establishing policy and standards.

*Objective 3: creation of an Industry Community within ISCT*

The creation and endorsement of an Industry Community within ISCT will prove to add value to all parties. The Industry Community is a forum designed to drive information and create value in the relationship between ISCT and the industry development sector. Access to information through connection with KOL in global regulatory and translational medicine space has great value. By participating in the Industry Community, companies will be able to focus information delivery to allow evaluation of the risk/benefit ratio in emerging

therapeutic markets, appreciate the future potential benefit relative to standard of care, assess the appropriateness of cell types for treatment of disease, advise on safety and clinical benefit endpoints, review pre-clinical models and regulatory expectations, and participate in global trial networks and global regulatory strategy. The information delivery from ISCT will be open and available from knowledgeable experts, global regulatory agencies and national scientific institutes, and cell characterization panels with discussions of implications regarding intellectual property, as well as other members of the community.

It is anticipated that a sponsorship-based participation program for the Industry Community will increase operational funds for key clinical development therapeutic forums, as well as key standardization and practice forums. The measure of success in the future will be determined by the degree the Industry Community within ISCT strengthens the identity and operational influence of ISCT as a translational society in regenerative medicine.

*Objective 4: establishing subcommittee structures and their charters and defining benchmarks for implementation*

As described in Objective 1, new subcommittees will create value-added products for ISCT. Defining their scope and output expectations would enhance the likelihood of success. The initial subcommittee structure and respective charters are presented Figure 1. For further information on the subcommittee charters, objectives and benchmarks, visit the ISCT CC at <http://www.celltherapysociety.org/index.php/industry/commercialization-committee>. Oct 4, 2010.

*Objective 5: identifying an appropriate role for industry input to the ISCT executive team*

The ITF participants have spearheaded a new incarnation for the CC and will become the initial standing members. The CC clearly recognizes the critical need to obtain appropriate demographic representation and nomination of memberships from the entire industry community. Participation in the ISCT Executive Committee should be encouraged.

## Summary

ISCT has the development, experience and knowledge through its membership base to advance the field of regenerative medicine significantly. However, challenges remain on multiple fronts, including advancing cell therapy from small institutional trials

<p style="text-align: center;">Process and Product Development Technology</p> <p style="text-align: center;"><i>To assess emerging cell processing technologies and forecast their impact on the commercialization process</i></p>	<p style="text-align: center;">Business Models, Reimbursement and COGS</p> <p style="text-align: center;"><i>To define economic aspects of manufacturing clinical cell products and tools influencing reimbursement and acceptance as standard of care</i></p>
<p style="text-align: center;">Industry Education</p> <p style="text-align: center;"><i>To construct educational platforms that drive commercialization objectives with external societies and industry community</i></p>	<p style="text-align: center;">Clinical Development and New Product Introduction</p> <p style="text-align: center;"><i>To address unmet patient needs by connecting industry, academia, and global regulatory agencies</i></p>

Figure 1. Subcommittees and charters.

to well-designed, large-scale, placebo-controlled randomized phase III clinical trials, and then beyond to production for cellular therapeutics. Understanding the regulatory environment between different nations and regions adds yet another layer of complexity. Recognition of the importance of these issues to the industry community has led to the evolution

of the CC within the ISCT. New objectives for the CC have been identified and new partnerships have been created. Further information and details on the implementation of ISCT's strategy for industry partnerships through the CC and Industry Community can be found at <http://www.celltherapysociety.org/index.php?page=industry>. Oct 4, 2010.