

Genome Canada Survey of New GE³LS Researchers

Report on Consultation & Survey Findings

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Introduction

Since its establishment in 2000, the Genome Canada community has flourished, with Genome Canada- and Genome Centre-funded projects attracting an increasing numbers of new researchers across many disciplines. During this time, Canada has developed a strong community of researchers who study *Genomics and its Ethical, Economic, Environmental, Legal and Social issues* (GE³LS). While much of this development within the GE³LS community may be attributed to the training environments offered by the individual Genome Canada-funded principal investigators (PI's), Genome Canada as well as the Genome Centres have played a large role in promoting networking among researchers in the community through funding and organization of conferences, workshops, symposiums and other events.

This report outlines and discusses the findings of a Genome Canada online survey to obtain feedback on these activities from the community of new GE³LS researchers across Canada. This is the first survey of its kind in the GE³LS community. The survey aimed to solicit feedback from “new researchers”, defined as individuals who have between 1 and 5 years of research experience in the GE³LS area. A “GE³LS researcher” was defined as someone “studying the relationship between genomics and society within any of a range of disciplines including the social sciences, law, philosophy, bioethics, anthropology, business ethics, commerce, economics, environmental sciences, journalism studies, political science, public policy, etc.” The purpose of the survey was to understand the demographic of new GE³LS researchers, their access to networking opportunities, and to solicit feedback about how networking can be improved in the GE³LS community.

The idea for the survey evolved through informal discussion with other Genome Canada GE³LS trainees and the Genome Canada Chief GE³LS Officer, Patricia Kosseim. The survey was developed in part through a process of Canada-wide telephone consultation with new researchers associated with each of the Genome Centres, and subsequent rounds of feedback from Genome Canada.

The first part of the report will outline the process of consultation that preceded the development of the survey. The idea behind the consultation was to obtain general feedback from new GE³LS researchers about what they identified as important areas of focus pertaining to networking and communication. The second part will outline survey methods findings. The report will conclude with some recommendations on ways to enhance networking and communication based on the input provided by new researchers.

Part A. Prior Consultation with New Researchers

Prior to the development of the survey, a consultation was conducted among new researchers in order to obtain preliminary feedback about networking strategies and ideas for items for inclusion in the survey.

Methods. Genome Canada new researchers were identified through personal networks of researchers by Rose Geransar and Patricia Kosseim. Up to two researchers affiliated with each Genome Centre were consulted during a 30-45 min telephone conversation or a feedback form sent via email. The conversations were open-ended and contents discussed generally reflected the interview guide in Appendix I. A total of 10 new GE³LS researchers were interviewed. One researcher was affiliated with two Genome centers.

Table 1. New GE³LS researchers who participated in the Genome Canada Consultation

Genome Centre	Name of participant	Position
Genome BC	Alice Hawkins	Doctoral student
	Emma Cohen	Research Assistant
Genome Alberta	Camille Ryan*	Post-doctoral fellow
Genome Prairie	Bill Boland	Doctoral student
Genome Quebec	Rosario Isasi	Research Associate
	Lucie Marisa Bucci	Research Associate
Ontario Genomics Institute	Claudia Emerson	Post-doctoral fellow
	Sarah Ali Khan	Doctoral student
Genome Atlantic	Valerie Darmonkow	M.Sc. Student
	April Manuel	Doctoral student

*Also affiliated with Genome Prairie

Findings. The process of consultation solicited feedback in two main areas: 1) How Genome Canada can generally facilitate networking opportunities between trainees², and 2) How can Genome Canada facilitate networking between trainees¹ and PI's. Participants were also asked whether they had any other suggestions about how their training as a GE³LS researcher could be enhanced³. Themes and particular suggestions were noted and are summarized in Table 2.

Overall, the consultation resulted in suggestions that fell into three categories: face-to-face networking opportunities, networking through communication media, and

² While the consultation used the language “trainees” to refer to participants, this term was later replaced by “new researchers” in the survey, as per the recommendation of Patricia Kosseim.

³ While the provision of training programs is not in Genome Canada’s mandate, suggestions on training programs are important to note as part of the broader consultation as they relate directly or indirectly to the issue of networking.

networking as a secondary outcome of participating in other training opportunities. It is important to note that the participants acknowledged the importance of both networking among GE³LS and other researchers, e.g. scientists, clinicians, etc., who were engaged in related work.

A great deal of support was expressed for face-to-face forums directly aimed at facilitating networking not only among new researchers, but between new researchers and other investigators. One common theme was the suggestion to host a greater number of local symposiums and workshops; another was to increase funding for new researchers to attend national and international conferences.

Table 2. Suggestions arising from consultation with new researchers

Networking theme	Subtheme	Examples
Face-to-face networking forums*	Local	'Info days' Breakfast seminar series
	Provincial	More provincial-level conferences and workshops
		Regional side-conferences at national annual meetings
	National	Funding to attend national conferences
Social evenings for students at GC conferences		
	International	Funding to attend international conferences
Networking through communication media	Online: website/ email	National project database
		Showcasing student research achievements
		GE ³ LS website
		GE ³ LS newsletter
		Facebook networking site
	Telephone	Hotline for people to call in with new ideas
		National student committee to facilitate networking
Networking through training opportunities	(no particular sub-theme)	Opportunity for collaboration on grants
		Apply for funding to host summer institutes
		Student exchange programs

* This indicates a high level of support (by 8 or more researchers)

A more modest level of support was expressed for networking opportunities using various other forms of media, e.g. email, websites, and telephone. Some new

researchers expressed an interest in having access to a searchable database of all researchers conducting GE³LS research in Canada. A number of researchers also supported the showcasing of student work in a national newsletter. Support for social networking tools were tempered by a concern regarding individual privacy.

Finally, a number of researchers also indicated that other training programs, for example student exchanges or hosting a summer institute resulting in certification would be excellent opportunities for networking as well. Some of the participants indicated that a practical way of facilitating both training and networking was to provide the opportunity for new researchers to collaborate and/ or act as co-investigators on Genome Canada grant applications.

Part B. Survey of New Researchers

The survey of new researchers was developed with three goals in mind: 1) to obtain a snapshot of the demographic of new GE³LS researchers in Canada, 2) to better understand the degree, significance and mechanisms of networking, both within the GE³LS community of new researchers and between new GE³LS researchers and the scientific community, and 3) to collect suggestions and feedback regarding existing and potential new avenues for networking that can be facilitated by Genome Canada.

Methods

Survey development. The survey was developed using SurveyMonkey online software through an iterative process involving feedback from Genome Canada⁴. The original version of the survey was produced based on the findings of the consultation with new researchers, summarized in Part A. Specific questions were developed for inclusion based on the suggestions provided and/or endorsed by the participants. This initial version was pilot-tested among the new researchers who participated in the consultation in late May 2009, as Genome Canada was conducting a review of the initial draft. Over the next month and a half, this version of the survey was reduced in scope attributable in part to fine-tuning of the specific objectives in conducting the survey to focus more specifically on communication and networking opportunities among young GE³LS researchers and obtain open-ended feedback on how these might be facilitated by Genome Canada.⁵ Changes from the original version included differences in terminology used, content and type of data collected. For example, instead of referring to survey respondents as “trainees”, they were referred to as “new

⁴ The process involved work with Ms. Sheila Chapman and Ms. Patricia Kosseim.

⁵ The final version of the survey did not undergo pilot-testing, in part because of issues with timelines for dissemination and collection of data. This is, however, somewhat unconventional as a survey should ideally undergo pilot-testing after each round of significant revisions.

researchers”. The revised survey focused on networking and communication, and not on other aspects training. Finally, whereas the initial draft of the survey sought primarily quantitative responses by asking respondents to prioritize a range of training and networking initiatives using a scale of 1-5, the later version sought only open-ended qualitative feedback and suggestions.

Target audience. There was some discussion regarding what inclusion criteria should be utilized. It was determined that the survey should solicit feedback from “new researchers”, defined as individuals who had between 1 and 5 years of research experience in the GE³LS area. A “GE³LS researcher” was defined as someone “studying the relationship between genomics and society within any of a range of disciplines including the social sciences, law, philosophy, bioethics, anthropology, business ethics, commerce, economics, environmental sciences, journalism studies, political science, public policy, etc.” In the final version of the survey, it was decided in conjunction with Genome Canada that the inclusion criteria should be used as a guide and not used to exclude potential respondents from providing feedback by participating in the survey; thus, the SurveyMonkey software settings were modified so as to allow respondents to complete the survey even if the inclusion criteria were not met. The final version of the survey was translated into French so as to be accessible to all new researchers across the country.

The flexibility of the inclusion criteria meant that the survey was open to GE³LS researchers in any sector, even if they were not currently engaged in GE³LS research, working with a Genome Canada-funded investigator, or directly affiliated with any Genome Centre. The survey was also designed so as to allow participants to skip any given question; this was deemed to be more constructive since forced answers can sometimes frustrate participants and skew survey findings. However that was accepted at the cost of item non-response, i.e. survey participants not answering one or more questions in the survey.

Dissemination/ data collection. Data collection took place from July 10 to September 14, 2009. The survey was posted on the Genome Canada website, and periodic emails were sent out to each of the Genome Centres on behalf of Genome Canada, requesting coordinators to further facilitate dissemination of the survey to their affiliated new researchers. As it became apparent halfway through the data collection period that some Genome Centres were under-represented in the survey, those centers were specifically contacted with reminders to boost the response rate.

Analysis. The survey sought input in four primary areas: I) new researcher backgrounds and demographics, II) attendance of conferences/ events, III) current networking practices, and IV) new ideas for networking and communication.

Questions that required a categorical response were quantified without statistical analysis. Responses to qualitative open-ended questions, namely part IV, were coded to develop themes.

Results

The findings of the survey will be summarized under the four aforementioned categories to reflect the structure of the survey: A total of 67 researchers completed the survey; 62 (93%) of respondents opted to complete the survey in English, and 5 (7%) completed the survey in French⁶. French and English responses are considered in aggregate. Appendix II outlines the survey, listing questions in the order they were asked.

I) New researcher backgrounds and demographics. The Genome Centres with the greatest number of affiliated respondents were: Genome British Columbia (BC) (14 respondents, 21%), Genome Alberta (12 respondents, 18%), and Genome Québec (12 respondents, 18%). A significant proportion of respondents (31%) did not report any affiliation with a Genome Centre (Table 3). Cross-tabulation of results showed that some researchers had cross-affiliations between Genome BC/Genome Québec, Genome BC/Genome Alberta, and Genome Alberta/Genome Prairie.

Table 3. Reported affiliation of respondents with Genome Centres (N=67)

Genome Centre	Number of respondents	Percentage
Genome BC	14	21%
Genome Alberta	12	18%
Genome Prairie	4	6%
Genome Québec	12*	18%
Ontario Genomics Institute	7	10%
Genome Atlantic	1	1%
No affiliation selected	21	31%

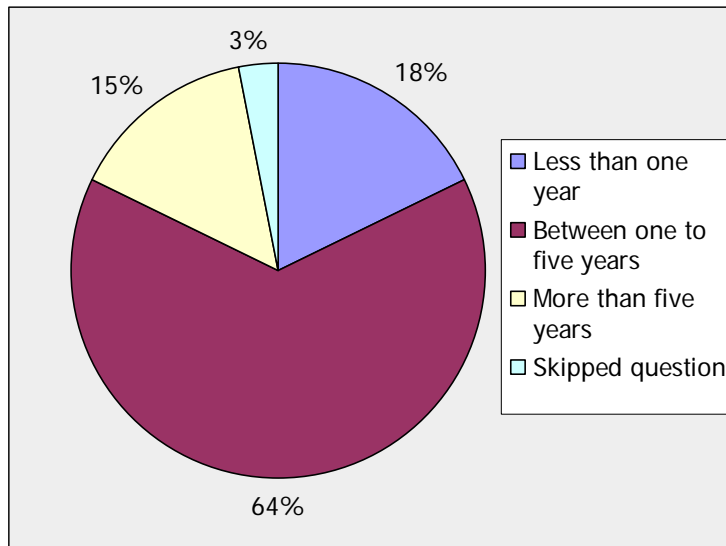
* 3 French-speaking and 9 English-speaking respondents

The majority (83%) of respondents were currently working on a project with a GE³LS-related theme. For the remaining respondents, the survey did not probe regarding how long ago they undertook their GE³LS-related research; given that respondents self-qualified based on the inclusion criteria for the survey, a project on a GE³LS-related theme was likely conducted within the last five years. In fact, the majority of

⁶ Of the 5 respondents who completed the survey in French, 3 reported being affiliated with Genome Quebec; the others did not report an affiliation with a Genome Centre. The majority of Genome Québec researchers completed the survey in English.

respondents (64%) were engaged in GE³LS work for a total of between 1 to 5 years. Almost a fifth of respondents (18%) had worked in a GE³LS area for less than a year, and almost a sixth (15%) had worked in this area for over 5 years.

Figure 1. Percentage of researchers currently working on a GE³LS -related theme (N=67)

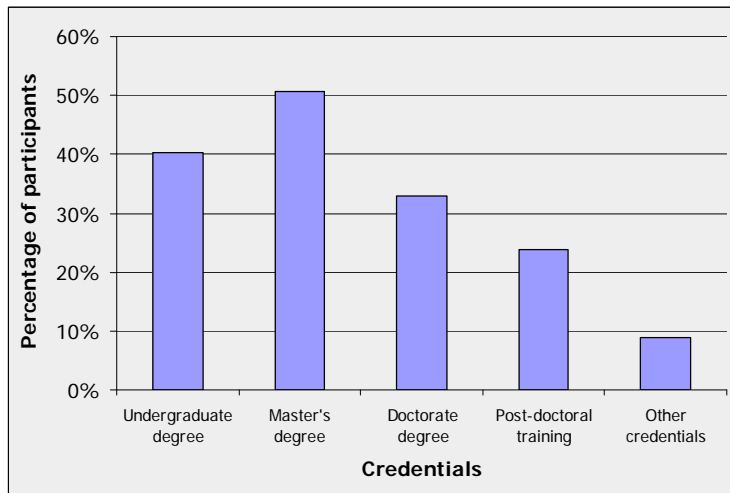


The majority of respondents reported having completed at least a Master's degree (51%), with many also having completed doctoral and post-doctoral level training (33% and 24%, respectively) (Figure 2).⁷ Most of the respondents were currently research assistants/ associates (46%) and/ or graduate students (28%), with a small proportion of undergraduate students (6%) and postdoctoral fellows (9%). Many respondents also specified "other" occupations, which mainly included entry level university faculty positions (Table 4).

A large minority of respondents came from a social sciences background (35%). Other respondents came from a mixed disciplinary backgrounds, including humanities (14%), natural sciences (11%), law (14%), and health sciences (17%) (Figure 3). Respondents could select more than one disciplinary affiliation, and a total of 106 responses were provided by 65 respondents.

⁷ Other reported credentials included genetic counseling and Master of Public Health degrees.

Figure 2. Respondents' completed credentials and level of educational training.

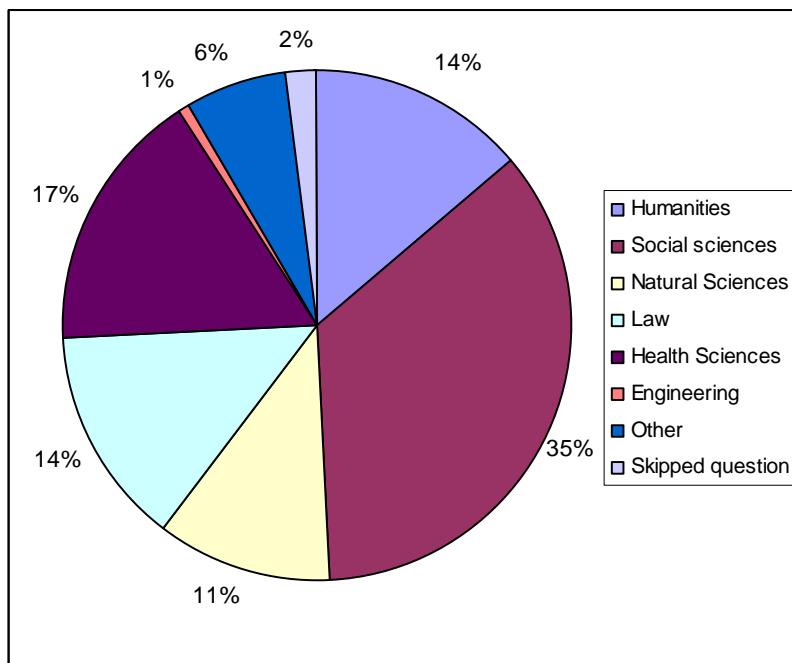


(96% response, 64 respondents)

Table 4. Respondent's current positions/ occupations (N=67)

Current position	Number of respondents	Percentage
Undergraduate student	4	6%
Graduate student	19	28%
Post-doctoral fellow	6	9%
Research assistant/ associate	31	46%
Other	16	24%
Skipped question	2	3%

Figure 3. Disciplinary backgrounds of respondents (65 respondents providing a total of 106 responses)



II) Attendance of conferences /events. Over half (52%) of all respondents had attended either Genome Canada-sponsored or regional conferences, symposiums, workshops or other events in the last five years. Approximately one fifth (19%) of all respondents reported never having attended any Genome Canada or regional genome centre events. Cross-tabulation⁸ of these results by genome centre affiliation revealed that respondents affiliated with Genome BC seemed to have the greatest participation in all regional and national events, and had attended the most diverse array of networking-type events (Figure 4). For example, in addition to Genome Canada and regional conferences and workshops, some Genome BC respondents reported having participated in informal summer barbeques and other events that promoted networking.

The most common reasons for non-attendance of Genome Canada-sponsored events reported by some researchers were that they had only very recently begun working in a GE³LS-related area (reported by 12 respondents) or lack of awareness (reported by 9 respondents). Four individuals indicated that the events did not fit into their schedule, and three did not attend due to lack of access to necessary funds. Only two respondents reported that they had not attended these events because it was not applicable or relevant to their field of interest.

New researchers affiliated with all genome centers reported a diverse array of sources of funds for attendance of conferences, symposiums and workshops. The most common source of funding reported by respondents was external (non-Genome Canada) sources of funding (49%), followed by Genome Canada grants (34%), genome centre grants (28%) and personal funds (25%) (Table 5). Findings are reflective of the majority (85%) of respondents.

⁸ Cross tabulation did not include Genome Atlantic since the survey software was only able to cross-tabulate by a maximum of five Genome Centres, and Genome Atlantic was excluded since only one respondent had reported an affiliation with that centre. Note that Figure 4 shows only data from respondents who reported an affiliation with the remaining five Genome Centres, whereas 31% of respondents to the survey did not report any genome centre affiliation.

Figure 4. Respondents’ participation in national and regional networking events in the last five years, by affiliation with Genome Centres (90% response rate, 60 respondents). Note that responses from participants not affiliated with a Genome Centre are not shown.

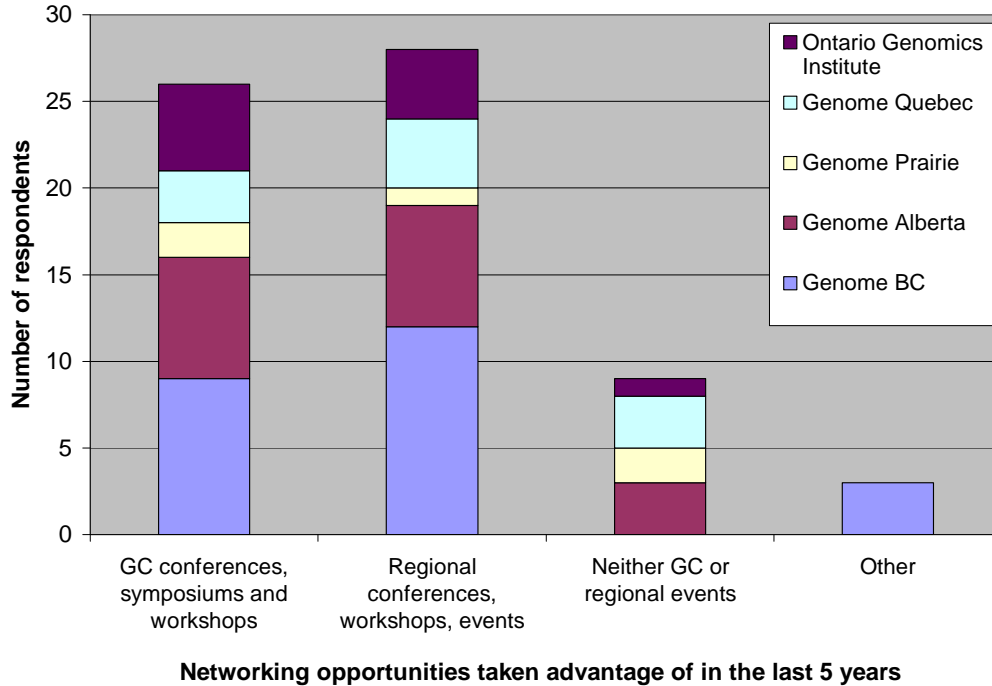


Table 5. Sources of financial support for attendance of conferences/ workshops (N=67). Each respondent could select more than one source of support.

Reason for non-attendance	Number of respondents	Percentage
Grant, bursary or scholarship offered by other funding agencies	33	49%
Principal investigator’s Genome Canada grant	23	34%
Principal investigator’s genome centre grant	19	28%
Personal funds	17	25%
Other (please specify)	5	7%
Skipped question	10	15%

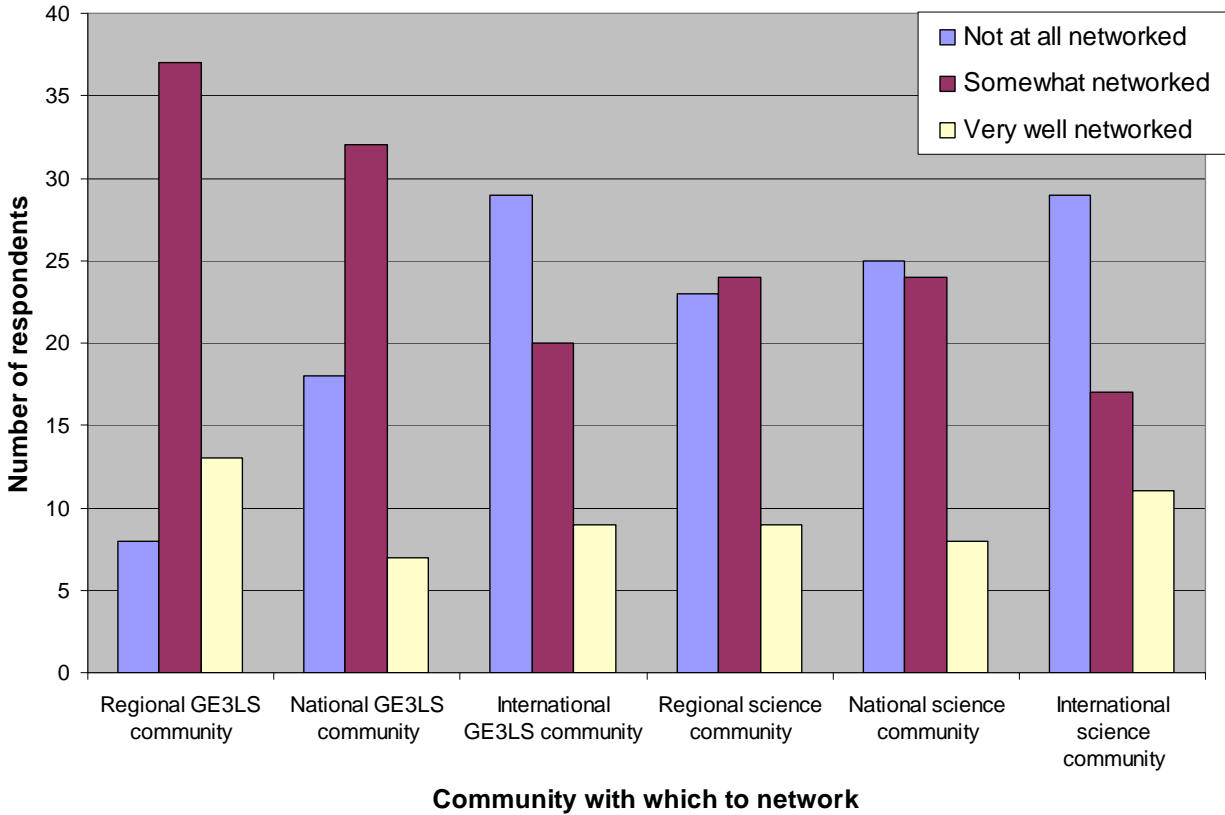
III) Current networking practices. The next part of the survey sought to determine how well networked researchers perceive they are with the GE³LS and science communities and how essential they consider this networking to the quality of their research. The response rate to the various parts of these questions was approximately 88%. The survey also sought to determine through what means researchers network with the aforementioned communities; between two-to-three quarters of individuals provided input on various components of this question.

Respondents rated their level of networking at the regional⁹, national and/ or international levels with the GE³LS and/ or science communities. Overall, less than one fifth of researchers indicated being “very well networked” at each of these levels in either the GE³LS or science communities. However, the majority of respondents perceived themselves to be at least “somewhat networked” with their regional and national GE³LS communities (Figure 5).

The number of individuals who felt “somewhat networked” within the GE³LS community was predictably highest at the regional level and lowest at the international level; conversely, the number of new researchers who felt “not at all networked” was lowest at the “regional” level and highest at the “international” level. However, such a pattern was not as clear regarding networking with the scientific community. The number of individuals who felt “not at all networked” with the science community were higher at all levels, and the number of researchers who felt “somewhat networked” with the science community were lower at all levels, as compared to networking within the GE³LS community.

⁹ The term “regional GE³LS community” was not defined in the survey. There had been some discussion about whether to include such a definition. It was decided that it was clear that “regional”, in the context of the survey, referred to regional Genome Centres.

Figure 5. Respondents’ current perception of the extent of their networking with regional, national and international GE³LS and science communities (88% response, i.e. 59 respondents answered one or more of the six parts of the question)



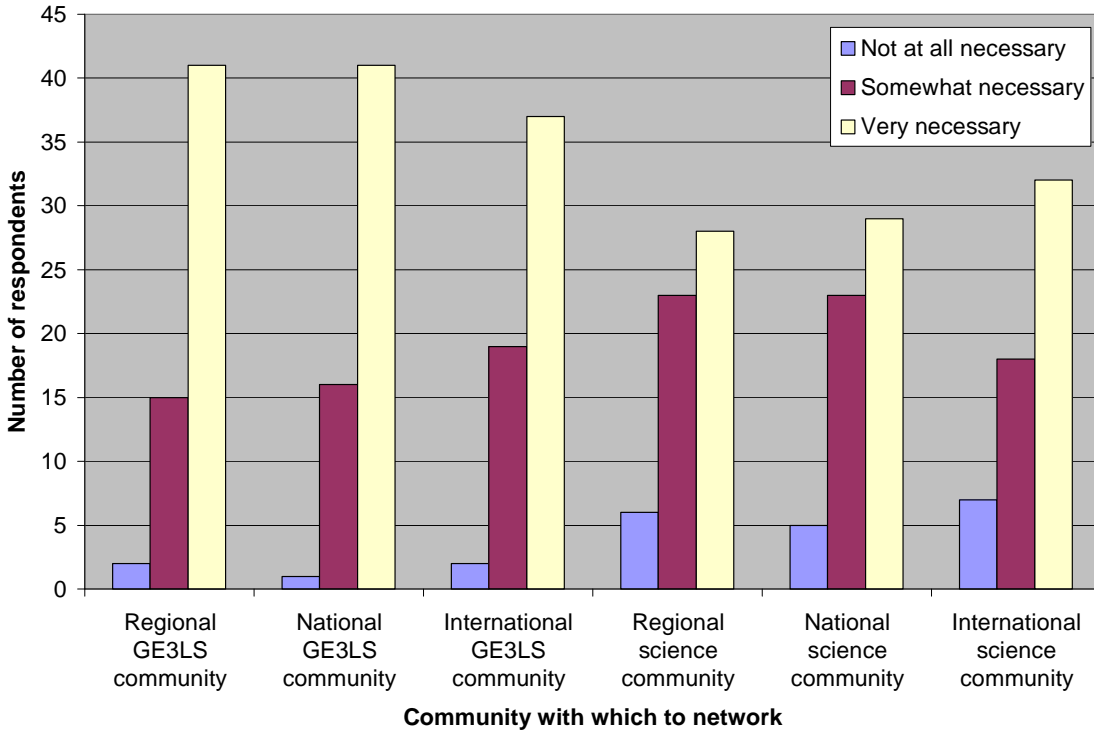
The importance of networking with all of these communities was highly acknowledged by respondents. More than half of all respondents indicated that they considered networking within the GE³LS community to be “very necessary” to the quality, impact and future of their research, including networking at the regional (61%), national (61%) and international (55%) levels¹⁰ (Figure 6). Almost all new researchers who responded to this question agreed that such networking at all levels in the GE³LS community was at least “somewhat necessary” to their research.

Likewise, the majority of respondents emphasized the importance of networking with the science community, though this was considered somewhat less important than networking within the GE³LS community. 42%, 43%, and 48% of new researchers reported that they considered networking with the science community to be “very necessary” at the regional, national and international levels, respectively. The large

¹⁰ These are percentages of the whole sample (N=67); this denominator includes those who skipped all or a part of this question. The percentage would be higher if taking into account only those who responded to the question.

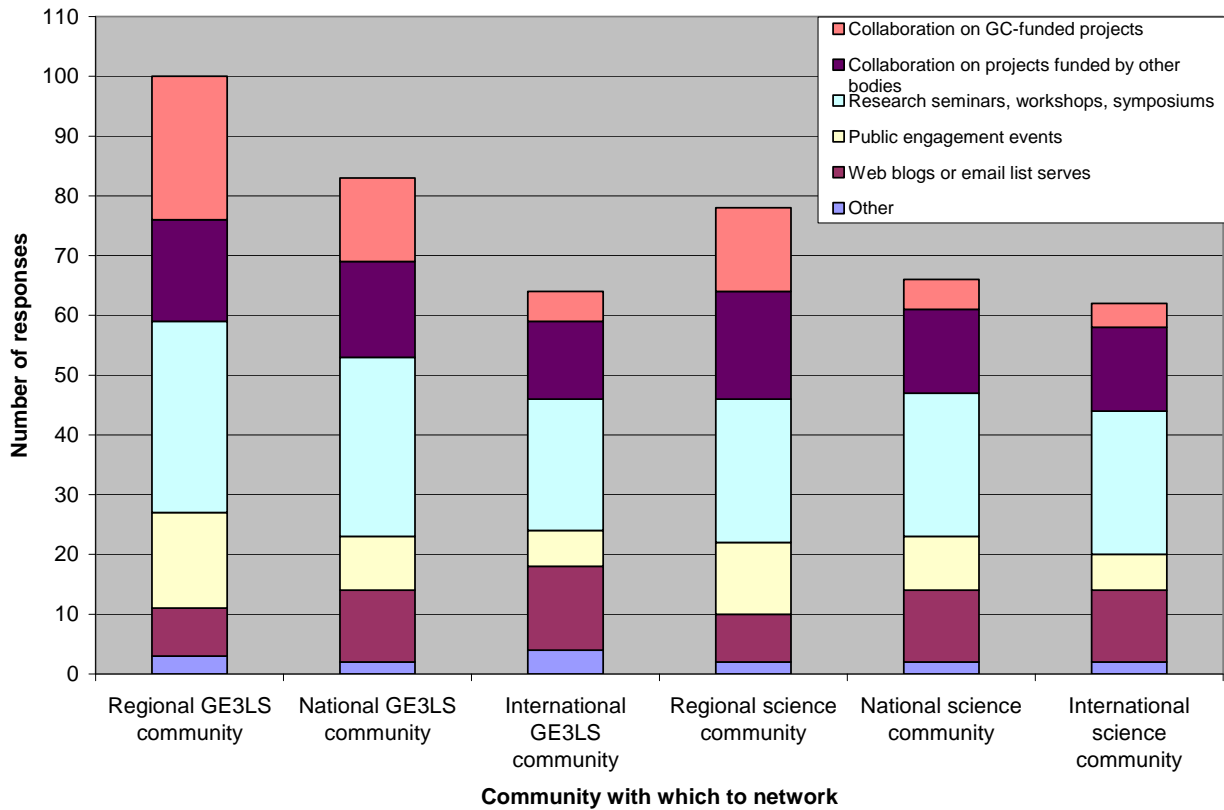
majority of respondents agreed that networking with the science community at all levels was at least “somewhat necessary” to their research (Figure 6).

Figure 6. Respondents’ perception of the importance of networking to the quality, impact and future of their research (87% response, i.e. 58 respondents answered one or more part of the question)



The most common way of networking at all levels was through participation in research seminars, workshops and symposiums. Collaboration on Genome Canada-funded projects and participation in public engagement events seemed to be important for networking at the regional level. Collaboration on projects funded by other bodies facilitated networking at all levels in both the GE³LS and science communities. Web blogs and list serves seemed to be more important for networking with international GE³LS and science communities (Figure 7).

Figure 7. Respondents’ reported means of networking with regional, national and international GE³LS and science communities (85% response, 56 respondents answered one or more parts of question)



IV) New ideas for networking and communication. In the open-ended response component of the survey, participants were asked to provide suggestions on how networking and communications strategies may be improved in a number of areas. These areas included: 1) through Genome Canada’s GE³LS website, 2) at national or international events, 3) at regional or local events, and 4) across research disciplines and research projects, and 5) across sectors (such as private industry, government policy, media).

Participants were given the option to provide up to three suggestions in each of the five areas outlined above. Overall, the response rate for these open-ended questions was low; only one fifth to one quarter of participants opted to provide suggestions in this area. Many of the themes and even specific suggestions provided in these five areas were overlapping; for example, in all areas, it was suggested that hiring a networking coordinator would be helpful. The themes are outlined below and summarized with examples in Table 6.

Genome Canada website. One of the main suggestions was to use the Genome Canada website to make available detailed research profiles of Genome Canada-funded and other GE³LS researchers using a powerful search engine. This was a suggestion that also provided through the prior consultations. Some respondents suggested that it would be useful to periodically highlight the work of new researchers on the website.

Another theme for improved networking through this media was to provide moderated online forums for interaction, such as blogs or message boards. One participant suggested links to social media, such as Facebook, on this website. A number of participants stated that it would be useful for the website to be used as a hub for sharing GE³LS career-related information and training opportunities, particularly for new researchers. Other suggestions included providing highlights of recent GE³LS articles and posting regular webcasts of meetings and other GE³LS events that take place across Canada.

National or international events. One of the main suggestions in this area was to provide a greater amount of funds for new researchers to attend GE³LS events, both nationally and internationally. While funds are often specifically directed at students, there was some insistence that a pool of funds also be made available to new researchers who are not students, for example, research associates or new investigators. This is significant in light of the fact that many new researchers reported external grants and scholarships as the main source of funding for attending conferences.

One particular suggestion was to have social components of GE³LS events specifically targeted at promoting networking among new researchers. One individual suggested that these large meetings can also be used as an opportunity to hold regional side meetings in order to enhance local networking and collaboration. Other suggestions pertained specifically to networking between new researchers and senior investigators. A number of individuals suggested that a mentoring breakfast (for example, such as that hosted by the Stem Cell Network at its annual general meetings) will be constructive for new researchers by giving them an explicit forum within which to discuss career and collaboration opportunities with principal investigators with whom they may otherwise not have the chance to converse.

Regional or local events. One of the main areas of emphasis at the regional level was to maximize face-to-face networking by promoting social activities among new researchers. Some participants suggested informal lunches or BBQ's involving both social science and science researchers. Other respondents suggested making existing professional events more interactive, for example by having small breakout groups or simply by using people's names in discussion. It was emphasized that the frequency

of these meetings and the participation of new researchers in particular was essential, meaning that more funds needed to be allocated in order to facilitate this.

Across research disciplines and research projects. One of the main areas of promoting collaboration among researchers was to continue and expand on the practice of promoting interdisciplinary team grants. The quantitative findings of the survey showed that this was one of the main ways that individuals engaged in networking at all levels, regionally, nationally, and even internationally. This was also an important way in which GE³LS researchers networked with the local scientific community. Therefore, not surprisingly, researchers insisted that there should be a greater push for promoting interdisciplinary interactions through grant requirements. This ties in to the theme of having greater face-to-face interactions among researchers, since such interaction is both required and feasible in interdisciplinary teamwork, particularly at the local level.

Another area of emphasis for enhancing networking across disciplines was through virtual knowledge dissemination. This included use of interdisciplinary journals, newsletters highlighting the work of individuals across different disciplines, and simply emphasizing the importance of knowledge translation and other activities requiring interdisciplinary collaboration to researchers across different disciplines. Other suggestions overlapped with those under “regional or local events”, namely promoting increased face-to-face interaction through small group workshops and other events.

Across Sectors. This area primarily included various suggestions aimed at bringing the relevant actors together face-to-face in order to discuss issues and interests. Suggestions included reaching out to these actors in other sectors to ensure that they are aware of and welcome at Genome Canada events, and making the effort to reach out and/ or link with events in other sectors. For example, some participants suggested academic-industry luncheons co-hosted by Genome Canada, and inviting these and other parties, such as media editors, to Genome Canada events. Other suggestions included promoting private-public partnership funding for projects, hosting a co-op work placement program for new students/ new researchers, and promoting career opportunities in these other sectors throughout the Genome Canada community (e.g. through newsletters or websites).

Table 6. Suggestions for networking and communication (French and English respondents)

Targeted area	Themes (Number of related comments)	Examples of suggestions
Genome Canada website <i>(comments from 17 respondents)</i>	Information on other researchers and projects (9)	<ul style="list-style-type: none"> ➤ Provide a list of local, national and international researchers, with contact information ➤ Providing a list and summary of all graduate students doing GE³LS related research; highlight the work of a senior and junior GE³LS on a regular basis. ➤ Improve the search engine for Genome-Canada funded research ➤ Develop a portal through which researchers can add their own details on projects
	Online forums for interaction (6)	<ul style="list-style-type: none"> ➤ Links to social media (ie Facebook, twitter) ➤ A moderated discussion forum (message board or blog) so GELS researchers can connect; e.g. private rooms for discussion on certain issues
	Info on Career & educational opportunities (5)	<ul style="list-style-type: none"> ➤ Providing a list of all GE³LS -related post doctoral fellowship opportunities and other jobs and career opportunities or links ➤ Provide up-to-date information on events especially educational seminars, including regional workshops
	Other (2)	<ul style="list-style-type: none"> ➤ Provide technical and research support for students to work together on related projects over long-distance; e.g. webcasting. ➤ Provide highlights of recent articles in the GE³LS area (2) ➤ Regular webcasts of events and meetings
National or international events <i>(comments from 18 respondents)</i>	Funding for new researchers/ students (6)	<ul style="list-style-type: none"> ➤ Have dedicated GE³LS conferences, provide travel money for students ➤ Have specific funds to include new researchers (non-students) ➤ Provide travel grants for international travel.
	General networking events (3)	<ul style="list-style-type: none"> ➤ Mingling/ getting to know sessions and events ➤ Organize theme-based networking sessions at events: theme based ➤ Side-meetings for regional GE³LS groups
	Networking between new and senior researchers (2)	<ul style="list-style-type: none"> ➤ Meet the experts breakfast ➤ mentoring breakfast for young researchers led by expert researchers
	Other suggestions (6)	<ul style="list-style-type: none"> ➤ A common publication resulting from these events ➤ Invite national, political decision makers to participate (e.g., to present the direction of government organizations) ➤ Host meeting of all GELS researchers to brainstorm research ideas, network, etc.

Targeted area	Themes (Number of related comments)	Examples of suggestions
Regional or local events <i>(comments from 19 respondents)</i>	Face-to-face <i>social</i> networking opportunities for new researchers (5)	<ul style="list-style-type: none"> ➤ Small, informal, on-site lunches or BBQs that allow people to eat together and talk, including both new social science and science researchers ➤ Organize some social activities for new researchers to familiar with each other and have more communications.
	Interactive layout of workshops (4)	<ul style="list-style-type: none"> ➤ small workshops with breakout groups decided in advance ➤ Consistent use of people's names in discussions (I've been impressed with this) ➤ mentoring breakfast for young researchers...
	Increase funding for local workshops and other professional development events (5)	<ul style="list-style-type: none"> ➤ Provide a GE³LS symposium fund where applicants can write in proposals for local, small scale, symposium to bring together researchers, present, and network. ➤ Organize regular seminars or workshops among new researchers ➤ Bring in international perspectives and speakers ➤ Invite scientists/ policy-makers
	Other suggestions (3)	<ul style="list-style-type: none"> ➤ More public engagement presentations, science Cafés
Across research disciplines and research projects <i>(comments from 18 respondents)</i>	Promote collaboration through funding opportunities (10)	<ul style="list-style-type: none"> ➤ Clearer pressure on basic / applied researchers to incorporate GELS components in grants ➤ Fund competition for GE³LS workshops that enable collaboration ➤ Involve new researchers in the projects; encourage multidisciplinary teams ➤ Allow non-Canadian researchers to receive some funds from grants ➤ Allow work exchanges for new researchers through terms financed by same project
	Virtual networking and knowledge dissemination (5)	<ul style="list-style-type: none"> ➤ Have a list of various researchers working in different areas ➤ wider circulation of (e)-mailout newsletters to keep people informed of what others are doing ➤ Highlighting the importance of each discipline in knowledge translation and technology assessment ➤ Publish work in journal that includes perspectives from all disciplines
	Face-to-face interaction (3)	<ul style="list-style-type: none"> ➤ Build working groups across disciplines ➤ Create more venues for cross-disciplinary networking, e.g. seminar series
	Hire a Networking coordinator/facilitator (5)	<ul style="list-style-type: none"> ➤ Have a network coordinator who scan projects and outputs and actively tries to make links across projects

Targeted area	Themes (Number of related comments)	Examples of suggestions
Across sectors (e.g. private industry, government policy, media) <i>(comments from 16 respondents)</i>	Events to bring actors across sectors together (12)	<ul style="list-style-type: none"> ➤ Have events which brings together all these actors, e.g. workshops, not just for the elite. This will provide opportunities to meet, share successes and challenges. It is important that we understand the challenges that other groups face in meeting their own goals. ➤ The event that our group is holding with Genome BC on 'translational science' is a good example of cross-sector networking ➤ Ensuring that actors from other sectors are at GELS events. ➤ Inviting members of editorial boards to session of a GELS or Genome Canada meeting ➤ Organizing more academic-industry meetings, e.g. luncheons, co-hosted by GC and regional genome centers, open to new researchers ➤ Organization of day on parliament hill to interact with government actors
	Funding and training programs (3)	<ul style="list-style-type: none"> ➤ Look into private-public partnership funding for projects ➤ Co-op programs ➤ Listing cross-sectoral work/ training opportunities on the GE³LS website
	Communication resources (2)	<ul style="list-style-type: none"> ➤ Help GE³LS researchers to disseminate their research results to the general public while being mindful of their concerns (e.g. thoughtful, nuanced dialogue) ➤ Make communications resources available to funded GE³LS researchers (e.g. communications experts)
	Other (2)	<ul style="list-style-type: none"> ➤ A newsletter to keep up to date on other relevant sectors ➤ Hiring a networking facilitator

Part C. Conclusions & Recommendations

Most new GE³LS researchers who responded to the survey have been in the academic community for a sufficient length of time to have experience with a variety of existing networking and communication strategies. Within this sample of researchers, a significant minority of individuals (31%) were not affiliated with any Genome Centre, but continued to be involved with GE³LS research, and more likely than not, other (Genome Centre affiliated) GE³LS researchers. Many of these researchers have not only attended Genome Canada events but have also been exposed to communication and networking strategies of other organizations and networks of which they are a part. This enriches the sample of respondents and data collected in this survey.

Many networking strategies that were suggested in the open-ended response component of the survey were variations of, and more of, existing initiatives that have so far been effective in promoting networking and communication for these researchers. For example, part III of the survey showed that research symposiums, workshops and collaboration on funded projects were the main ways of networking with other researchers (Figure 7). Considered in conjunction with respondents' perceived levels of networking with the regional and national GE³LS communities, this is an indication that existing face-to-face networking forums such as workshops and symposiums have been effective to some extent (Figure 5). One area that was not sufficiently explored in part III of the survey was the role of social events for networking at the regional level, both in the science and GE³LS communities; however, support for this was indicated in the suggestions provided in part IV of the survey. Virtual networking has also been important, but more so at the international level where researchers have fewer chances to meet face-to-face.

In light of the findings of the survey and consultation, six recommendations are made to further facilitate networking and communication for new researchers. These recommendations may be implemented by strategically redirecting funds and/ or simply changing logistic aspects of existing communication and networking initiatives; in some cases, implementation of recommendations may require allocation of additional funds and this can be considered in due course as resources permit.

Recommendation 1. Promote greater involvement of new researchers in existing small group workshops and symposiums, ensuring that these events are designed to have interactive components and involve the relevant range of cross-disciplinary and cross-sector stakeholders. These workshops are a primary way in which new researchers network at all levels with other GE³LS and science researchers. There is considerable support for this in the pre-survey consultation, as well as both the

quantitative and qualitative findings of the survey. When possible, create a process whereby researchers may apply for partial funds to host such workshops on specific areas of their expertise.

Recommendation 2. Provide additional funding for new GE³LS researchers to attend national and international events; allocate specific funding to graduate and undergraduate students, but also to new researchers who do not fit these categories and who may opt to further their education and/ or training in GE³LS areas in the future. An excellent example of such allocation of funding was exemplified at the 5th *International DNA Sampling Conference*, for which Genome Canada contributed funds to cover registration and accommodation costs for (new) researchers whose work was accepted for poster or concurrent session presentations.

Recommendation 3. Genome Centres should provide more opportunities for face-to-face networking, including social networking for their researchers, both within the regional GE³LS and science communities. Social networking events, e.g. lunch seminars, picnics, retreats or other local events should make explicit attempts to bring together local new researchers working in both the GE³LS and science areas. Other examples include public engagement events that involve new researchers in both the regional science and GE³LS communities. These interactions early on in researchers' careers can break down disciplinary barriers and sow the seeds for collaboration in the future.

Recommendation 4. Continue to encourage interdisciplinary teams, as well as cross-sector collaboration on Genome Canada- and Genome Centre-funded grants. Create/ maintain the emphasis on the involvement of new researchers, and where possible and appropriate, provide new researchers (e.g. post-docs) the opportunity to act as co-investigators on grants. Such collaboration is a practical way of facilitating networking as well as training for developing new investigators.

Recommendation 5. Create a position for a national networking coordinator, whose job it will be to maintain an up-to-date compendium of career and other related networking resources on the national GE³LS website, and who will liaison with the Genome Centres to gather and disseminate information on career, training and networking opportunities. This dedicated role will also ensure continuity in oversight and flexibility of any ongoing networking or communication initiatives that are undertaken, e.g. a blog on the Genome Canada website, a moderated Facebook page, etc.

Recommendation 6. Create a volunteer advisory committee of new GE³LS researcher from across Canada whose role it will be to provide advice and feedback

on existing and potential future networking and communication initiatives. Provide the means for this committee to meet via teleconference at regular intervals throughout the year or as deemed necessary. Provide for a Genome Canada representative (e.g. a networking coordinator or other individual) to attend these teleconferences in order to report back to the Chief GE³LS officer. This will not only promote networking among committee members but will act as a mechanism by which to solicit feedback on the shifting needs of this relatively new community of GE³LS researchers. It is also an excellent way in which to actively involve new researchers in leadership roles in the GE³LS community.

Appendix I

Consultation- Guide

Introduction:

The purpose of this consultation is to generate your input into how capacity development, trainee networking and other training opportunities can be improved in Genome Canada. Your feedback will be used to develop an online survey that will be sent to Genome Canada trainees across the country. The responses will be taken into consideration by Genome Canada to developing a Genome Canada survey to solicit feedback from a broader group of researchers. Your participation in this informal consultation does not guarantee that all of the suggestions that are provided will materialize. This is just to brainstorm ideas for inclusion in the survey, so that other trainees across the country will have an opportunity to provide input on them as well.

I will be consulting with one or two trainee representatives from each of the other Genome Canada regions as well. In doing so, I'm acting as an agent on behalf of Genome Canada.

Do you/ have you worked with Genome Canada funded investigators?

If yes:

Please specify the investigator(s) and project(s):_____

How has working with a Genome Canada investigator directly contributed to your training experiences?

If no:

Are there any ways in which GC has indirectly contributed to your training experiences?

If you are not at all familiar with Genome Canada, refer to your experiences of being a part of other national networks.

The general question to consider is: What can Genome Canada provide in order to enhance overall networking and communication?

There are three main areas in which I would like to generate feedback, as outlined below:

- 1. How Genome Canada can generally facilitate networking opportunities between trainees?**
- 2. How can Genome Canada facilitating networking between trainees and PI's?**
- 3. What other training programs would be useful for you?**

Appendix II

Survey: New Researchers Studying Ethical Environmental Economic Legal or Social Aspects of Genomics *English Version*

1. Introduction

Genome Canada is seeking input from new researchers studying the ethical, environmental, economic, legal or social aspects of genomics (collectively referred to as "GE³LS researchers") on ways to enhance communication and networking opportunities.

For this survey, you are considered a "new researcher" if you have 1 to 5 years of academic research experience. You are considered a "GE³LS researcher" if you are studying the relationship between genomics and society within any of a range of disciplines including the social sciences, law, philosophy, bioethics, anthropology, business ethics, commerce, economics, environmental sciences, journalism studies, political science, public policy, etc.

The responses from this survey will be analyzed in aggregate; individual responses are anonymous and will be kept confidential. The survey will take less than 15 minutes to complete. If you experience technical difficulties, contact Rose Geransar at rmgerans@ucalgary.ca.

After completing this survey, you can enter your name for a draw to win a PRIZE of free registration and hotel accommodation to Genome Canada's International Conference, April 28-30, 2010, Château Frontenac, Quebec City. (Click [here](#) to see the conference announcement.) Your name will be submitted separately from your responses so your responses will remain anonymous.

Your feedback is much appreciated!

2. Researcher Background

Please provide some background information about yourself:

Are you currently doing research on a project with a GE³LS theme?

- Yes
- No

How long have you been doing GE³LS work/ research? This includes Genome Canada or non-Genome Canada funded research.

- Less than one year
- Between one to five years
- More than five years

Which, if any Genome Centre(s) are you/ have you been affiliated with?

- Genome British Columbia
- Genome Alberta
- Genome Prairie
- Genome Québec
- Ontario Genomics Institute
- Genome Atlantic

What degree programs/ qualifications have you completed?

- Undergraduate degree
- Master's degree
- Doctorate degree
- Post-doctoral training
- Other credentials (please specify) _____

What is/ are your current position(s)?

- Undergraduate student
- Graduate student
- Post-doctoral fellow
- Research Assistant/ Associate
- Other (please specify) _____

What is/ are your disciplinary background(s)?

- Humanities
- Social sciences
- Natural sciences
- Law
- Health Sciences
- Engineering
- Other (please specify) _____

3. Face-to-Face Networking

Which of the following face-to-face networking opportunities related to GE³LS have you taken advantage of in the last 5 years? (select all that apply)

- Genome Canada conferences, symposiums and workshops (See list of examples).
- Regional conferences, symposiums, workshops or public outreach programs sponsored by the Genome Centres
- None of the above
- Other (please specify) _____

If you did not take advantage of any Genome Canada-funded events, please indicate why:
(select all that apply)

- N/A
- Was not aware of the opportunities
- Lack of access to necessary funds
- Did not fit into my work/ study schedule
- They were not applicable to my field
- Only recently began working with a Genome Canada-funded investigator
- Other reason (please specify) _____

In general, in what ways do you secure financial support for attending workshops and conferences?
(select all that apply)

- Principal investigator’s Genome Canada grant
- Principal Investigator’s Genome Centre grant
- Grant, bursary or scholarship offered by other external funding source
- Personal funds
- Other (please specify) _____

4. Networking: Current Practices

In this section, the term “Regional community” refers to researchers within your province, or associated with your regional Genome Centre (in British Columbia, Alberta, Prairie, Ontario, Quebec, or Atlantic regions).

Currently, how well networked are you with the following communities of researchers?

	Not at all networked	Somewhat Networked	Very well networked
Regional GE ³ LS community	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
National GE ³ LS community	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
International GE ³ LS community	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Regional Science community	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
National Science community	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
International Science community	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

How essential do you consider networking at each of these levels to the quality, impact and future of your research?

	Not at all necessary	Somewhat necessary	Very necessary
Regional GE ³ LS community	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
National GE ³ LS community	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
International GE ³ LS community	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Regional Science community	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
National Science community	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
International Science community	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

In which of these ways do you network with each of these groups of researchers?

(If other, then please specify below)

	Collaboration on Genome- Canada funded projects	Collaboration on projects funded by other funding bodies	Research seminars, workshops, symposiums	Public engagement events	Web blogs or email list serves	Other
Regional GE ³ LS community	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
National GE ³ LS community	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
International GE ³ LS community	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Regional Science community	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
National Science community	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
International Science community	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Please indicate any other ways that you network: _____

5. New Ideas for Networking and Communication

Genome Canada launched a GE³LS website in June 2009. Click [here](#) to view this website. We want to hear your ideas on how to improve networking and communication for new GE³LS researchers, either through the web site or in other ways. The findings of this survey will be taken into consideration by Genome Canada, but Genome Canada cannot guarantee that any particular idea will be implemented.

For any or all of the areas specified below, please indicate how opportunities for networking and communication for new GE³LS researchers can be improved.

(Provide up to 3 suggestions for any item, in order of priority)

Networking and communication opportunities can be improved:

Through Genome Canada's GE³LS website:

Suggestion 1 _____

Suggestion 2 _____

Suggestion 3 _____

At national or international events:

Suggestion 1 _____

Suggestion 2 _____

Suggestion 3 _____

At regional or local events:

Suggestion 1 _____

Suggestion 2 _____

Suggestion 3 _____

Across research disciplines and research projects:

Suggestion 1 _____

Suggestion 2 _____

Suggestion 3 _____

Across sectors (e.g. private industry, government policy, media):

Suggestion 1 _____

Suggestion 2 _____

Suggestion 3 _____

Finally, do you have any other networking or communication ideas or comments that you would like to share?
