The Chemical Angel Network
January 16, 2018
A GC3 Startup Network Webinar
What is the GC3?

- A cross-sector, full value chain business membership organization
- A convener of collaborations to advance green chemistry innovation & practice
- An advocate for government policy & funding that advances green chemistry R&D and innovation

**Mission:** To make green chemistry standard practice – **Mainstream** – in industry, for innovation, public health, and environmental protection
More than 120 Members Across Sectors and the Value Chain
Creating an innovation ecosystem for green and bio-based chemistry technologies

Goals

• Support green and bio-based chemistry start-ups
• Introduce large strategics to new chemical technologies, partnership and investment opportunities
Members of the GC3 Startup Network Include:

- Aequor
- GreenBiologics
- Renmatix
- ACTICELL Technology Solutions
- Resinate Materials Group
- P2 Science
- grow bioplastics
- FRX polymers
- Kalion
- MANGOMaterials
- AMYRIS
- Sylvatex
- Paxymer
- Mimikai Insect Repellent
- Sironix Renewables
- connora
- GF Biochemicals
- MOTHERDIRT
GC3 Startup Network Technology Showcases

Workshop on Leveraging Partnerships to Accelerate Green & Bio-Based Chemistry Innovation

February 1, 2017
Hosted by LEVI STRAUSS & CO.

http://greenchemistryandcommerce.org/startup-network/
10 startups will be selected to present their technology to large companies

Apply by February 16, 2018
Funding for travel costs is available.

https://greenchemistryandcommerce.org/startup-network/tech-showcase-2018

3rd Annual Green & Bio-Based Chemistry Technology Showcase & Networking Event
May 8, 2018
Eastman Chemical Company, Kingsport, TN
# Technology Needs for the 2018 GC3 Technology Showcase

<table>
<thead>
<tr>
<th>Adhesives</th>
<th>Fabric Finishes</th>
<th>Monomers/Polymers</th>
<th>Recyclable Latex</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coating Technologies</td>
<td>Flame Retardants</td>
<td>Plasticizers</td>
<td>Recycling Technologies</td>
</tr>
<tr>
<td>Corrosion Inhibitors</td>
<td>Fungicides</td>
<td>Polyurethanes</td>
<td>Solvents</td>
</tr>
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Raw materials for formulated consumer products (including personal care and household products)

The following GC3 members contributed to the list of technology needs:

- Apple
- BASF Corporation
- Beiersdorf AG
- Best Buy Company, Inc.
- Eastman Chemical Company
- Johnson & Johnson
- Kingfisher plc
- L’Oréal USA
- Levi Strauss & Co.
- New Balance
- Procter & Gamble Company
- Patagonia
- Sherwin Williams
- Steelcase
- Target
13th Annual GC3 Innovators Roundtable
May 8-10, 2018

3rd Annual Green & Bio-Based Chemistry Technology Showcase & Networking Event
May 8, 2018

Registration is now open.
Ground Rules

• Due to the number of participants in the webinar, all lines will be muted

• If you have a question or comment, please type it in the “Questions” box located in the control panel

• Questions will be answered at the end of the presentation
Today’s Speaker

Mark Vreeke

Co-Founder
Chemical Angel Network
Chemical Angel Network

Chemists Investing in Chemical Companies

News and Updates from the Chemical Angel Network (CaN)

GC3 Startup Network
January 16
12:00 – 1:00 EST
Chemical Angel Network (CaN) Outline

- Introduction
- Members
- Entrepreneurs
- Process
- 5 Year update
What is the Chemical Angel Network?

**Mission**
- Stimulate the growth of the *Chemical Economy* by providing financial capital and experienced mentorship to seed and early stage chemical companies. (3Ms)

**Goals**
- Recruit an *active investor* base by presenting quality investments opportunities to qualified investors
- Become the smart capital choice for early stage chemical and chemically-related *enterprises*
- Provide a *framework* and process for the collection, evaluation, *syndication* and monitoring of deal flow
Why was the Chemical Angel Network formed: Fills a GAP

CaN provides access to seed capital and mentorship to move innovation out of the laboratory
Angel Investment in the Start up Company Funding Continuum

**Seed/Startup**
- Personal
- Savings
- Credit Cards
- Second Mortgage
- Friends/Family
- Equity Capital
  - Angel Capital
  - Venture Capital
- Loans
  - Microloans
  - Bridge Loans
- Grants
- Crowdfunding

**Early**
- Equity Capital
  - Angel Capital
  - Venture Capital
- Loans
  - Bank Loans
- Microloans
- Grants
- Crowdfunding

**Growth**
- Equity Capital
  - Venture Capital
  - Corporate Venture
- Loans
  - Bank Loans
  - Government Loans
- Mezzanine Funding

**Exit**
- Cash Out Strategy
- Mgt. Buy Back
- ESOP
- IPO
- Valuation Partner

Funding sources typically available at various business stages

- Cashflow ($0)
- Cash Flow Relief
  - Suppliers
  - Customers
  - Owners
  - Valuation Partner

Declining
Sector Focus
Early Stage Companies with a Significant Chemistry Component

- **Materials**
  - Chemicals (e.g. polymers, biomaterials, green chemicals, coatings, plastics, dyes, etc)
  - Nanomaterials (e.g. silicon, polymer, metal oxide-, etc.
  - Membranes, battery technologies, packaging materials, etc.

- **Measurement**
  - Chemical Instruments and Tests
  - Chemical Sensors (e.g. drugs, explosives, alcohol, toxic chemicals)
  - Diagnostic Tests (e.g. biomarkers, instruments, etc)

- **Manufacturing**
  - Chemical Processes
  - Biomass and Biomaterial Processes
  - Catalyst technologies
CaN Investor Footprint Today
What the Chemical Angel Network (CaN) is not

- CaN is not a fund
- CaN is not a broker
- CaN does not make investments
- CaN does not act as an investment agent in any manner
- CaN does not receive any share of returns from its members’ investments
- CaN is not registered with the Securities and Exchange Commission

CaN members collaborate on due diligence and mentoring but make individual investment decisions!
Chemical Angel Network (CaN) Outline

- Introduction
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Chemical Angel Network Member Benefits

- Opportunity to invest in chemical companies with potential for a high return on investment capital. Minimum investment $5k through the CaN pool.
- Ability to make investment decisions with input from the network’s members and shared due diligence.
- Expertise of network members to help portfolio companies succeed.
- Option to review private equity deals anonymously.
- Free membership to the Angel Capital Association.
- CaN membership is still free.
Angel Investing Statistics

- Excellent returns of 20-30% ROI (caveats!!!!)
- Returns are better when angels invest together
- Median check size is 25k (CaN is around 10k)
- The number of investments increase the odds of a positive portfolio return
Profile of A Typical US Angel

- Years investing: 9
- Number of investments: 10
- Total exits: 2
- Years as entrepreneur: 14.5
- Number of ventures founded: 2.7
- Age: 57
- Percent of wealth in angel investing: 10%
- Education: Masters
Chemical Angel Network
Membership Application

- Request to join through our website
  www.ChemicalAngels.com

- Application key points
  - Must be an Accredited Investor as defined by Rule 501 of the SEC Regulations
  - Agree to abide by operating agreement
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Entrepreneur Benefits

- Provides a platform to present business proposals to a network of accredited investors.

- Saves entrepreneurs time since the vetting process is virtual. Eliminates the need to find, locate, and coordinate multiple meetings with individual Angels.

- CaNs focus on syndication with other angel groups multiplies the reach of the entrepreneur.

- All applications are considered - no fees are charged to chemical entrepreneurs or businesses
What Due Diligence Team does: Opportunity Ranking

- Management Team
- Timing
- Business Opportunity
- Product
- Context
- Resilience

$
Typical Deals for CaN

- Compelling business model addressing a large or growing market using a scalable approach
- Company headquartered near an existing member’s residence
- A match with an existing member’s experience in the sector that the company is addressing
- Investments to $100K and larger amounts syndicated with other networks or funds
- The round has existing investors already identified
Entrepreneurs

- Submit your Business Proposals using the Entrepreneur link on our website

www.ChemicalAngels.com
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Investment Workflow

New: Recent company submissions

Screening: Available to all members

Presenting: Que for presentations

Due Diligence: Formal review

Invested: Company monitoring

Reviewed: Pool of candidates to present

Rejected
Other Process Details

- GUST platform for vetting deals
- WebEx for virtual group communication
- Biannual Meetings at ACS National Meetings, Angel Capital Association and MRS National Meeting
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Chemical Angel Network
Fifth Year Update

- Members - over 40
- Deals Submitted - over 300
- Investments 17
- Sponsors 5
- Partners 10+
- LinkedIn Group .... Chemical Angel Network 1800+
Sponsors and Partners

Sponsors
- Dow
- Invista
- Xerox
- ecosVC
- TransAtlantic Science

Partners
- ChemCeption
- ecosVC
- HYLTON-RODIC LAW PLLC
- Polaris Battery Labs, LLC
- Green Centre Canada
- NCET2 National Council of Entrepreneurial Tech Transfer
- ONAMI Oregon Nanoscience and Microtechnologies Institute
- TransAtlantic Science
Investment Returns

- iMicroQ 😊
- Buffalo Bayou Brew 😊
- NOHMS 😊
- Pediatric Bio 😐
- Vapor Sense
- Qteros 😞
- EV Container 😞 😊
- SiNode
- Connora
- PanTher
- Abom 😊
- SioTex
- Autonomic Materials
- Advano
- Smart Human Dynamics 😊
- Near Miss
- Aperomics

Realized ROI  -7%
- Equal investments
- Flat for operating companies

Unrealized ROI  +25%
- Equal investment
- Flat for operating companies without a revaluation
Next Steps for CaN

- Grow Active Membership Base
- Provide an investment vehicle for passive participation
- Increase participation with other organizations
- Internship opportunities

CaN’s success depends on your active participation
Chemical Angel Network
Chemists Investing in Chemical Companies

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www.ChemicalAngels.com
Question & Answer

Please enter questions or comments in the “Questions” box located in the control panel.
Upcoming Patent Webinar Series
A GC3 Startup Network Webinar

Part 1: Developing Your Patent Portfolio
Wednesday, January 31, 2018 at 12:00 PM EST

Part 2: Protecting Your Patents from Post-Grant Challenges
Tuesday, February 27, 2018 at 12:00 PM EST

Part 3: Enforcing Your Patents
Wednesday, March 28, 2018 at 12:00 PM EDT

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For more information about the GC3:
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