

Developing Bioprocessing Talent for the Future

Ken Baker
CEO
NewAge AdvantaPure



Bio-Process Systems Alliance
Advancing Single-Use Worldwide



BPSA International
Single-Use Summit

There is a big problem in our industry

Lack of future talent



Bio-Process Systems Alliance
Advancing Single-Use Worldwide



BPSA International
Single-Use Summit

How did our thinking about this issue start?

Our bioprocessing puzzle give away at Interphex this year



Bio-Process Systems Alliance
Advancing Single-Use Worldwide



BPSA International
Single-Use Summit





Bio-Process Systems Alliance
Advancing Single-Use Worldwide



BPSA International
Single-Use Summit

Previous Survey Results:



ASPEN SURVEYS™

WHERE IN THE EDUCATIONAL PROCESS WOULD YOU MOST LIKE TO SEE YOUNG PEOPLE BEGIN TO GAIN INCREASED AWARENESS OF OUR INDUSTRY, BOTH ITS CONTRIBUTIONS AND CAREER OPPORTUNITIES?

ELEMENTARY SCHOOL

15%

MIDDLE SCHOOL

40%



HIGH SCHOOL

40%

COLLEGE

5%

ASPEN
SURVEYS™

ASQ 1177 2023 0612



Bio-Process Systems Alliance
Advancing Single-Use Worldwide



BPSA International
Single-Use Summit

Lots of conversation with
end-users

Biopharma 4.0 - the Talent Evolution

BPI articles about the emerging challenge for talent, skill and expertise required to operate biopharma 4.0

The aging of the workforce

Pharma and biotech is expanding – worldwide

- **Ultragenyx Opens New Gene Therapy Plant in US**
- **JBS Starts Construction on World's Largest Cell-Based Meat Facility**
- **Enzene takes first step out of India with NJ plant**
- **WuXi Increases Manufacturing Capacity in Germany**
- **Boylston Contractor Breaks Ground on New Biopharma Facility**
- **Novo Nordisk Investing \$2.3 Billion Into Hillerød Manufacturing Expansion**
- **Sterling Bay, Harrison Street Break Ground on Sorrento Mesa Biotech Campus**
- **Bristol Myers' Cell Therapy Manufacturing Site in Massachusetts is Good to Go, FDA Says**
- **Abcellera Receives \$300 Million in Funding for Biotech Campus**
- **Samsung Biologics, Pfizer Partner to Manufacture Biosimilars Portfolio**



Bio-Process Systems Alliance
Advancing Single-Use Worldwide



BPSA International
Single-Use Summit

Some companies are expanding their training
and developing capacity

Merck, A&T to Establish Biotech Training Center at Gateway Research Park



Bio-Process Systems Alliance
Advancing Single-Use Worldwide



BPSA International
Single-Use Summit

Biotech is/will compete for talent with the IC Chip industry

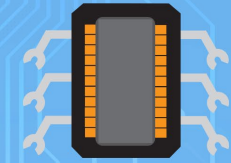
- Federal Gov - Chips Act - \$38B funding to re-shore IC chip mfg
- \$210B funds are being pledged investment by companies to build plants
- Work force hubs in Phoenix and Columbus Ohio
- Shortage of 70,000 to 90,000 jobs – tech workers
- Intel is partnering with community colleges and Universities to train
- Micon pledged \$100B in next decade to build plant in NY – need 9,000 workers

CYTOTECHNOLOGY & CELL SCIENCE

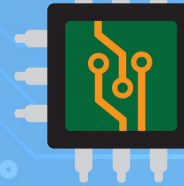


HIGH SCHOOL STUDENT INTERESTED IN S.T.E.M.

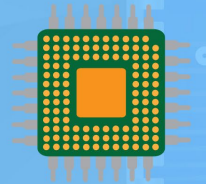
MICRO ELECTRICAL SCIENCE



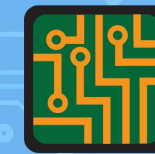
MATERIAL SCIENCE



SEMICONDUCTORS

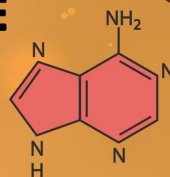
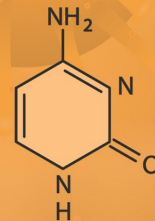
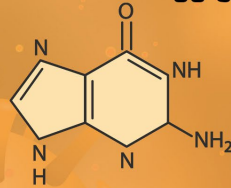


COMPUTER ENGINEERING

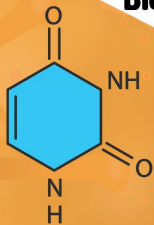


CHIP DESIGN ENGINEER

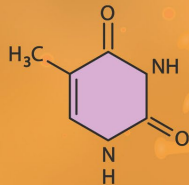
MOLECULAR BIOLOGY



BIOPHARMACEUTICALS



BIOTECHNOLOGY



MEDICAL LABRATORY SCIENCE



$$E=mc^2$$



Bio-Process Systems Alliance
Advancing Single-Use Worldwide



BPSA International
Single-Use Summit

IC Chip jobs are much more
visible in the press than
biotech jobs/careers

“Developing the best-and-brightest scientists and engineers domestically, and recruiting talent globally, is critical to ensuring semiconductors remain a top U.S. export and our industry continues to be a key driver of a strong and innovative American economy.”

Semiconductor Industry Association



Bio-Process Systems Alliance
Advancing Single-Use Worldwide



BPSA International
Single-Use Summit

High School Students in Electrify Summer Camp



High School Students in the LNF participating in ECE's Electrify Summer Camp



Bio-Process Systems Alliance
Advancing Single-Use Worldwide



BPSA International
Single-Use Summit

What can we do about
this?

Develop an industry
marketing plan to create
awareness of careers in
Biotech

Develop marketing tools

Some ideas – Bioprocessing Ambassadors (BA)

- Ask people in the industry to provide 1, 2 or 3 days per year to go into high schools and or college classroom to present the biotech industry
- Develop a “stock” power point talking about the Biotech industry and the cool jobs/careers for making “life saving medicines”
- Provide PDF files hand outs of the listing of Job/careers and the requirements needs – degree, certificate, training etc
 - Need information directed to parents and guardians
- Have a web site which has the Ambassadors and the High Schools/Colleges listed and match for the in-class presentation
- Mailings to high schools and colleges that BAs are available

Some ideas

- Bought www.bioprocessambassadors.com
- Could make this initiative into a 501c3 nonprofit organization
- Get funding from the industry's HR function to support
- Maybe Bio or BPSA wants to drive it
- Create career awareness in social media - ads and case studies
 - Need a central location on web for additional information
 - Have Pharma and biotech post jobs
- Get Colleges and University to contribute to fund
 - Have Colleges and University put links to their curriculums
- Case studies of how life saving treatment is saving and helping to change lives

What will happen if we don't help
biotech with future talent?

Questions Ideas Discussion

Ken Baker
NewAge AdvantaPure
kbaker@newageind.com
215-526-2300

“Connecting the pieces with single use”



Bio-Process Systems Alliance
Advancing Single-Use Worldwide



BPSA International
Single-Use Summit