e-CongressTrack™ Social Media Impact of the 65ᵗʰ ASH Annual Meeting & Exposition 2023

Date of the event: December 09-12, 2023 – In-person + virtual

APLUSA January 2024

Objectives

The 65th ASH annual meeting and exposition took place on December 09-12, 2023, in San Diego, California. The schedule at a glance is available here. This year's event was primarily an in-person event with virtual broadcasts available. Like last year, *APLUSA* exhibited in person with a physical booth. With this social media analysis, we will be assessing the impact of the conference online:

From the view of HCPs:

- Conditions most discussed during the listening period
- Posts that generated the most engagement
- Key trials mentioned
- A deep dive into the major developments presented during the conference

From the view of pharma companies:

- Top pharma companies (in terms of engagement and mentions) and the impact of their online communication including owned and earned mentions
- Insights into what has been communicated from the top pharma company

e-CongressTrack™

Focus on HCPs

SCOPE

The scope of the analysis is focused on mentions coming **worldwide**.*

There were a total of **11K** mentions from HCPs and **502** mentions around pharma companies recorded during the listening period from **December 2nd, 2023,** to **December 19th, 2023** (two weeks before and one week after the conference).
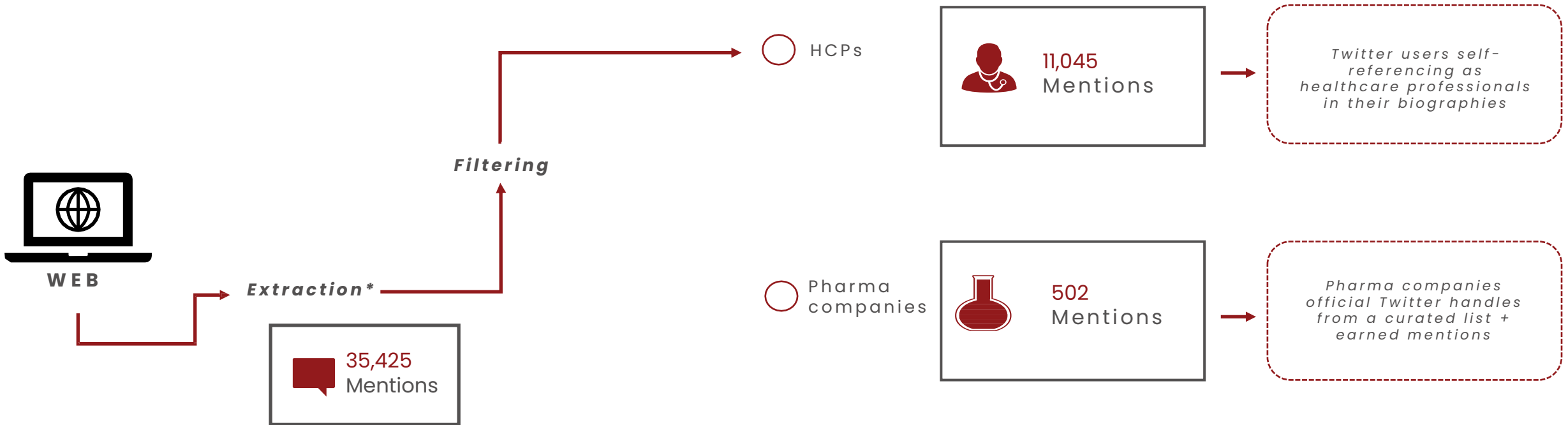
All mentions came from **Twitter**.

A total of **744** unique authors were identified.

*#ash23 OR #ash2023 OR #ASHTrainee OR #ASHkudos OR #ASHRunWalk OR #ASHaiku

Methodology

WEB

Extraction*

35,425
Mentions

Filtering

○ HCPs

11,045
Mentions

→ *Twitter users self-referencing as healthcare professionals in their biographies*

○ Pharma companies

502
Mentions

→ *Pharma companies official Twitter handles from a curated list + earned mentions*

**#ash22 OR #ash2022 OR #ASHTrainee OR #ASHkudos OR #ASHRunWalk OR #ASHaiku

● CONTENT

01.

Social media performance: HCPs

- **Volume of conversation**
- **Top posts**
- **Top hashtags**

02.

Disease landscape

- **SOV disease**
- **SOV clinical trial**

03.

Key topic focus

- **Focus on multiple myeloma**
- **Key clinical trial: iStopMM**
- **Focus on bispecific antibodies in multiple myeloma**
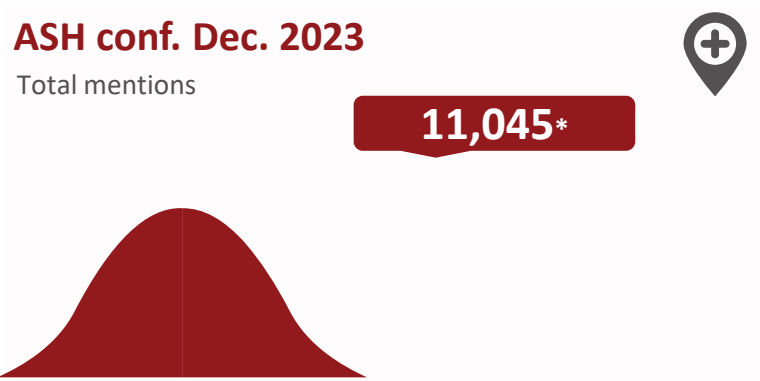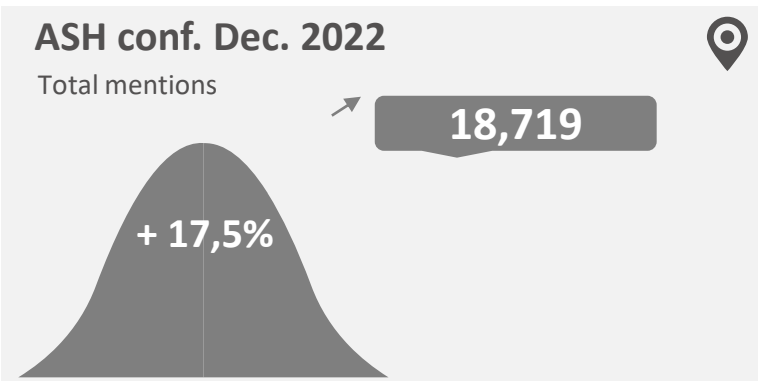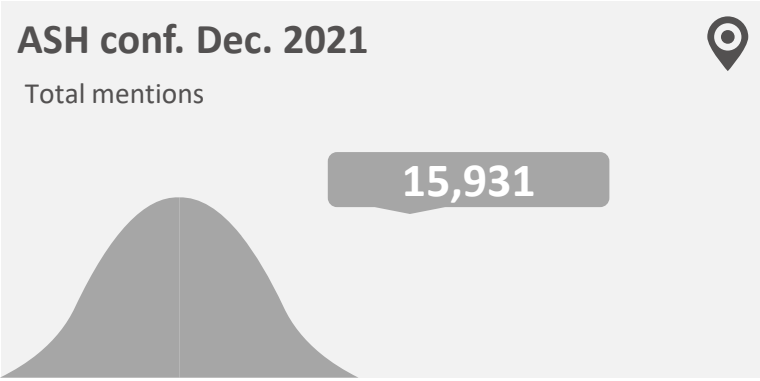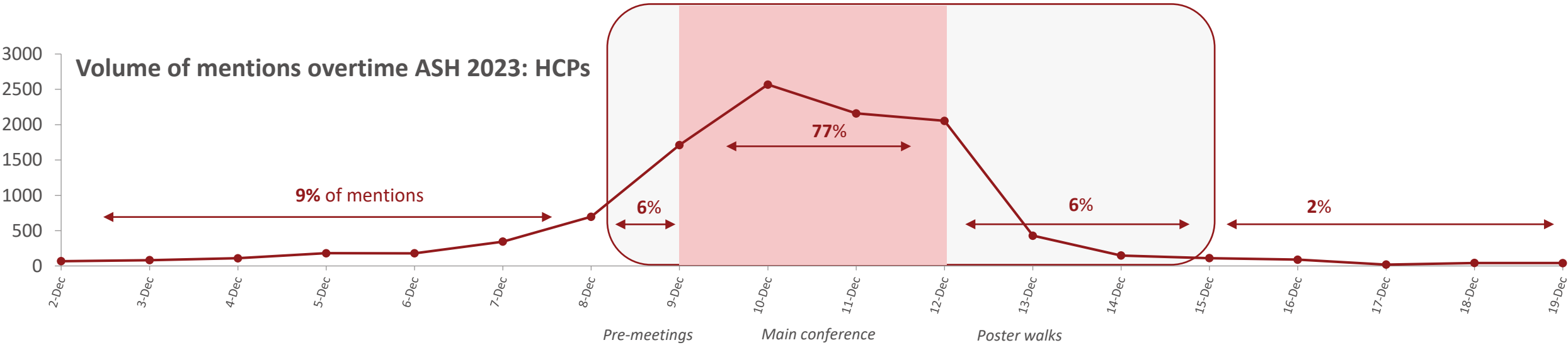- **Focus on CART in multiple myeloma**

04.

Social media performance: pharma

- **Volume of mentions**
- **Top posts**
- **Most mentioned companies**
- **Top pharma companies (volume + engagement)**
- **Top companies per impact**
- **Focus on Incyte**

Volume of conversations

As usual, the peak of conversations happened during the conference representing 77% of mentions recorded during the listening period.

Volume of mentions overtime ASH 2023: HCPs

9% of mentions

6%

77%

6%

2%

Pre-meetings

Main conference

Poster walks

ASH conf. Dec. 2021
Total mentions

15,931

ASH conf. Dec. 2022
Total mentions

18,719

+ 17,5%

ASH conf. Dec. 2023
Total mentions

11,045∗

∗Not comparable as shorter listening period taken in consideration in 2023

Top posts

Most liked

A hematologist/oncologist "Shematologist, MD" highlighted an example of note taking on patients to denounce **stigmatizing language**.

Most retweeted

Influential Dr Rajkumar shared **his approach of multiple myeloma treatment** based on the results of ASH 2023.

Most replied to

Dr Goodman shared a humorous picture asking his followers to guess a diagnosis based on an ASH picture.

Most engagement
Most liked, retweeted and replied (Ctrl + right click to access tweets)

Top hashtags

The top hashtag was
#mmsm
(multiple myeloma social media) denoting multiple myeloma as the most discussed topic of conversation during the event.

The official hashtag #ash23 was the most used one with the variation #ash2023 in second place. Note the use of specific hashtags such as #ashkudos corresponding with events organized by ASH during the conference. More generic hashtags #medtwitter and #hematology round up the top 5.

ASH 2023

Top # disease

#mmsm	1,976
#lymsm	931
#leusm	482
#myeloma	379
#mpnsm	222
#lymphoma	215

Top # ASH

#ash23	10,319
#ash2023	706
#ashkudos	207
#medtwitter	135
#hematology	124

Share of Voice (SOV) of medical conditions most discussed (# of mentions): multiple myeloma, acute myeloid leukemia, and diffuse large B-cell lymphoma dominated online discussions.

SOV conditions

Condition	Mentions
Multiple Myeloma	2463
Lymphoma	1532
Leukemia	1264
Myelodysplastic syndromes	493
Myeloproliferative neoplasms	238
Sickle cell	175
Amyloidosis	117
Smoldering multiple myeloma	82
Monoclonal gammopathy of...	73
Hemophilia	33
Venous thromboembolism	26
Waldenstrom macroglobulinemia	13
Clonal hematopoiesis	10
Paroxysmal nocturnal...	10
Thalassemia	8
Immune thrombocytopenic...	4
Blastic plasmacytoid dendritic cell	3
Beta Thalassemia	1

SOV Lymphoma

Condition	Mentions
Diffuse large B cell Lymphoma	446
Follicular Lymphoma	169
Mantle cell Lymphoma	152
Peripheral T cell Lymphoma	13
Adult T Cell Leukemia/Lymphoma	4

SOV MPN

Condition	Mentions
Myelofibrosis	143
Polycythemia Vera	33
Essential Thrombocythemia	20

SOV Leukemia

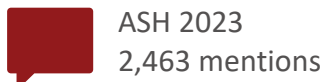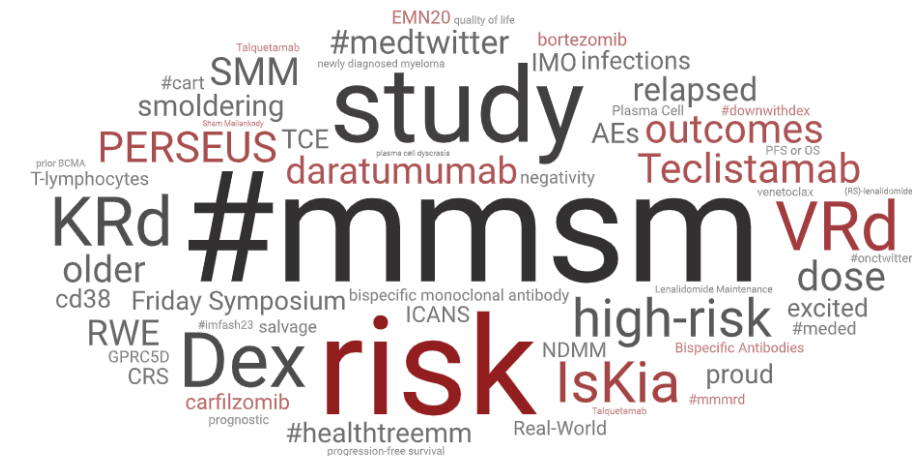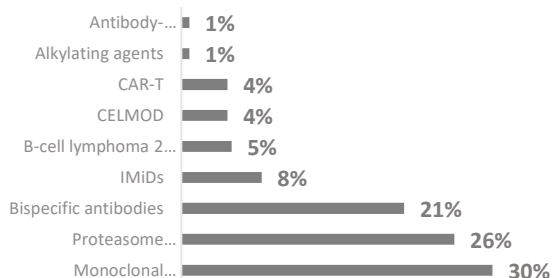| Condition	Mentions
Acute myeloid Leukemia	590
Chronic lymphocytic Leukemia	213
Acute Lymphoblastic Leukemia	164
Chronic myeloid Leukemia	28

This year's ASH edition saw the **top three most discussed clinical trials overall** being about multiple myeloma and linked illnesses, MGUS and smoldering multiple myeloma.

Of note, the encouraging results from the **PERSEUS and IsKia** trials using quadruplet therapies for newly diagnosed patients.
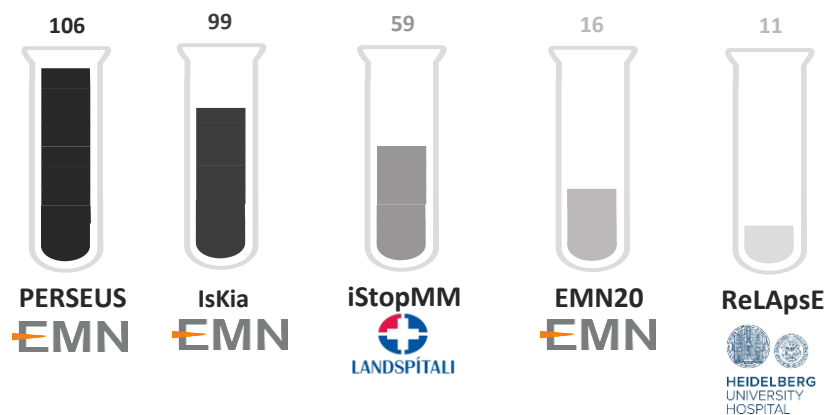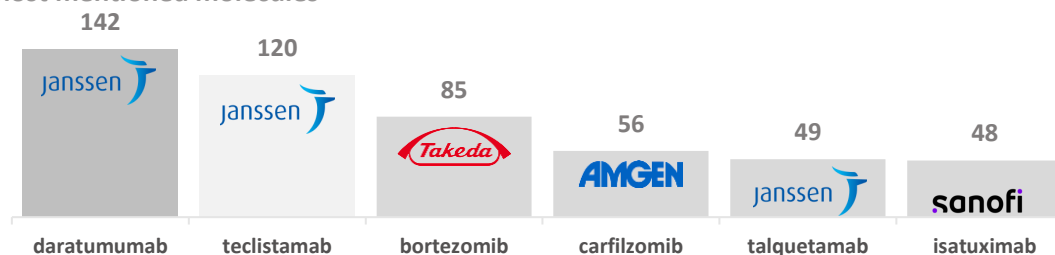
Volume of mentions

ASH 2023
2,463 mentions

Topics of discussions (type of treatment)

Topic	Percentage
Antibody-...	1%
Alkylating agents	1%
CAR-T	4%
CELMOD	4%
B-cell lymphoma 2...	5%
IMiDs	8%
Bispecific antibodies	21%
Proteasome...	26%
Monoclonal...	30%

Word cloud: EMN20, quality of life, #medtwitter, bortezomib, Talquetamab, SMM, newly diagnosed myeloma, IMO infections, #cart, smoldering, Shaji Mailankody, TCE, relapsed, Plasma Cell, #downwithdex, PERSEUS, daratumumab, negativity, AEs, outcomes, PFS or OS, Teclistamab, prior BCMA, plasma cell dyscrasia, study, T-lymphocytes, **#mmsm**, venetoclax, (RS)-lenalidomide, KRd, VRd, #onctwitter, older, dose, cd38, Friday Symposium, bispecific monoclonal antibody, Lenalidomide Maintenance, excited, #imfash23, salvage, ICANS, high-risk, #meded, RWE, GPRC5D, Bispecific Antibodies, CRS, Dex, **risk**, NDMM, IsKia, proud, carfilzomib, Talquetamab, #mmrd, prognostic, #healthtreemm, Real-World, progression-free survival

Most mentioned clinical trials

PERSEUS	IsKia	iStopMM	EMN20	ReLApsE
106	99	59	16	11

EMN · EMN · LANDSPÍTALI · EMN · HEIDELBERG UNIVERSITY HOSPITAL

Most mentioned molecules

daratumumab	teclistamab	bortezomib	carfilzomib	talquetamab	isatuximab
142	120	85	56	49	48
janssen	janssen	Takeda	AMGEN	janssen	sanofi

Top posts from HCPs per engagement

Aaron Goodman – "Papa Heme" ✔
@AaronGoodman33

🚨🚨🚨 ASH Plenary 🚨🚨🚨

4 active drugs in myeloma makes more patients MRD negative then 3. Groundbreaking.

I won't be in attendance but my question would have been "why not add teclistamab after IsaKRd" to make even more patients MRD negative.

#ASH23

Vincent Rajkumar ✔
@VincentRK

Updated treatment approach to newly diagnosed myeloma based on new #ASH23 data.

Explanation for changes in thread. #MedTwitter 1/
Traduire le post

Manni Mohyuddin ✔
@ManniMD1

How to treat myeloma after #ASH23

-don't treat high risk smoldering
-do quads for transplant eligible (but no cd38 maintenance afterwards)
-don't do quads or carfilzomib in newly diagnosed frail/older patients
-don't do a salvage auto no matter how good the first auto was
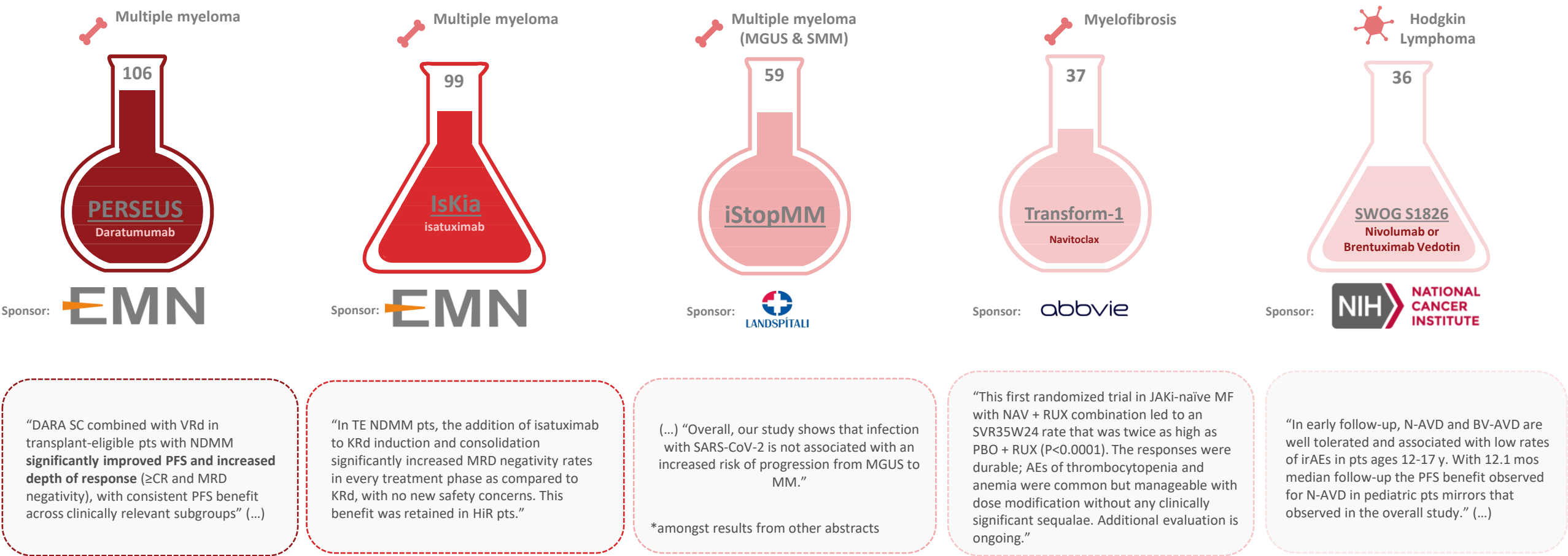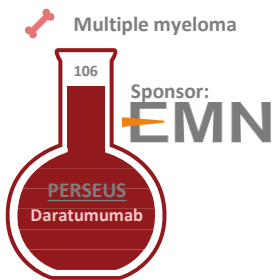
SOV of clinical trials most discussed (# of mentions)

Tip : click on the trial names to look at their full paper in ASH program

Multiple myeloma

106

PERSEUS
Daratumumab

Sponsor: EMN

Multiple myeloma

99

IsKia
isatuximab

Sponsor: EMN

Multiple myeloma (MGUS & SMM)

59

iStopMM

Sponsor: LANDSPÍTALI

Myelofibrosis

37

Transform-1
Navitoclax

Sponsor: abbvie

Hodgkin Lymphoma

36

SWOG S1826
Nivolumab or Brentuximab Vedotin

Sponsor: NIH NATIONAL CANCER INSTITUTE

"DARA SC combined with VRd in transplant-eligible pts with NDMM **significantly improved PFS and increased depth of response** (≥CR and MRD negativity), with consistent PFS benefit across clinically relevant subgroups" (…)

"In TE NDMM pts, the addition of isatuximab to KRd induction and consolidation significantly increased MRD negativity rates in every treatment phase as compared to KRd, with no new safety concerns. This benefit was retained in HiR pts."

(…) "Overall, our study shows that infection with SARS-CoV-2 is not associated with an increased risk of progression from MGUS to MM."

*amongst results from other abstracts

"This first randomized trial in JAKi-naïve MF with NAV + RUX combination led to an SVR35W24 rate that was twice as high as PBO + RUX (P<0.0001). The responses were durable; AEs of thrombocytopenia and anemia were common but manageable with dose modification without any clinically significant sequalae. Additional evaluation is ongoing."

"In early follow-up, N-AVD and BV-AVD are well tolerated and associated with low rates of irAEs in pts ages 12-17 y. With 12.1 mos median follow-up the PFS benefit observed for N-AVD in pediatric pts mirrors that observed in the overall study." (…)

Multiple myeloma

106

Sponsor: **EMN**

PERSEUS
Daratumumab

Results from the **PERSEUS** showed PFS at 48 months of 84,3% compared to 67,7% in the VRd only group. The trial also showed improved CR and MRD negativity rates that increase and sustain over time.

Spontaneous reaction was positive with online HCPs deeming the quad therapy a **new standard of care**. Aspects and remarks highlighted by HCPs include:

℞ Doubts expressed about the VRd dosing used in the study and suggestion to use an **alternative regimen**, most notably for Velcade amongst other adjustments.

€ Questions were raised about the **reimbursement of daratumumab**.

⚙ Doubts about the necessity to use daratumumab during **maintenance**.

👍 **Renewed confidence** towards **bortezomib** as the safest proteasome inhibitors for newly diagnosed patients.

Rémy Duléry
@RemyDulery

#ASH23 Late-breaking abstract
LBA-1 - Pieter Sonneveld et al.

Important results of the PERSEUS trial just published @NEJM

These randomized phase 3 results support D-VRd followed by D-R maintenance as a new standard of care for transplant-eligible patients with NDMM.
@Mohty_EBMT

Raj Chakraborty
@rajshekharucms

PERSEUS ➡ Important to note that NO signal for increased early mortality from toxicity with Dara-VRd compared to VRd. OS curves trending in the right direction (similar to CASSIOPEIA)! These data further prove that V is probably the safest PI for most ND pts!
#ASH23

Rafael Fonseca MD 🎗🇺🇸🌵🇲🇽 ✔ · Dec 12, 2023
@Rfonsi1 · Follow
Replying to @Rfonsi1

This makes QUADs, in this case Daratumumab-RVD, the new standard of care. Now that lenalidomide and bortezomib are generic, advocacy (global) needs to be made to have payers cover daratumumab.

Mateo Mejia
@mmejia91

It looks great! But I hope nobody does the Dex 40mg d1-4 weekly as it was done in PERSEUS. Also not sure if the design can actually inform on Dara maintenance relevance, which cassiopeia suggest is not necessary but used a diferent dosing schedule #ash23

Rafael Fonseca MD 🎗🇺🇸🌵🇲🇽 ✔ @Rfonsi1 · 12 déc. 2023
Congrats to all investigators, @JanssenUSOncMed and everyone involved.

PS
- In clinical practice I would recommend to use weekly Velcade
- Could be changed to K
- Lower stem cell collection but sufficient
- MRD 10-6 should be new standard.

Rahul Banerjee, MD, FACP
@RahulBanerjeeMD

#ASH23 a point I had totally missed - thanks @mmejia91!

For those implementing GRIFFIN or PERSEUS for #MMsm, we suggest GRIFFINDOR (named by @GKaurMD):

👉 Dara per label
👉 V D1,8,15 (I sometimes drop D8 dose once in VGPR)
👉 R 21/28 days
👉 dex 20mg once-weekly to off

PERSEUS universe N= 106 mentions
Listening period: December 2nd, 2023, to December 19th, 2023

13

Multiple myeloma

99

Sponsor:
EMN

IsKia
isatuximab
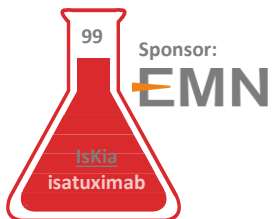
MRD rates improved over time (post-induction, post ASCT and post-consolidation) for patients under Isa-KRd compared to patients under KRd however further analysis is necessary to draw final conclusions.

Aspects and remarks highlighted by HCPs include:

⚠ The combination ISA-KRD **cannot be considered for approval** with MRD as an endpoint. There is therefore an expectation for further exploration of the combination using PFS as an endpoint.

🔓 However, the trial setup **opens up new possibilities** for understanding how MRD relates to PFS and OS.

👍 Of note encouraging results when it comes to **side effects** such as febrile neutropenia not being increased with quadruplet therapy such as Isa-KRD.

Ben Derman ···
@bdermanmd

IsKia the way to go?
MRD as the primary endpoint:
1️⃣ precludes reg approval for isakrd – maybe IMROZ will get Isa into frontline?
2️⃣ sets the stage for understanding how change in MRD corresponds w/change in PFS/OS
3️⃣ will show how outcomes differ for 10^-5 and 10^-6 neg #ASH23

Raj Chakraborty ···
@rajshekharucms

Consistent message from both quad vs triplet trials (PERSEUS and ISKIA) ➡ Increase in G3/4 neutropenia with addition of anti-CD38 monoclonal antibody does *Not* translate to increased febrile neutropenia!
#ASH23

Rahul Banerjee, MD, FACP ···
@RahulBanerjeeMD

#ASH23 Congrats Dr. Gay et al for IsKia plenary #MMsm session!

Excited to see such rapid results thanks to MRD endpoint, and even more excited to see PFS & OS results in due time.

And biggest win: a modern Phase 3 trial with once-weekly PI dosing 👏

CD38-KRd is here to stay!

Multiple myeloma (MGUS & SMM)

59 Sponsor: LANDSPÍTALI
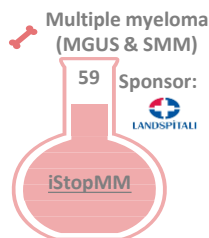
iStopMM

The data presented this year was focused on the psychological well being of the population enrolled in the IStopMM trial amongst other investigations. No evidence of increased levels of depression or anxiety or decreased levels of life satisfaction in the context of the trial.

Malin Hultcrantz MD PhD
@MalinHultcrantz

Screening fundamentally changes the face of myeloma - @SaemundurMD presenting on outcomes of @iStopMM. Early diagnosis and no negative impact on QoL #ASH23 #mmsm

Other development of note that were discussed about IStopMM:

Revision in the definition of **free light chain** in MGUS as a marker of disease evolution. This could help decrease the rate of false positive diagnosis of LC-MGUS by more than 80%.

Mateo Mejia
@mmejia91

New sFLC based on @iStopMM. Using current reference ranges there was a high rate (as high as ~40% for KLC), and there was a significant reduction in the number of patients diagnosed with LC-MGUS (~80%), with no lymphoproliferative dx on f/u (although 3.5yr only) #ASH23 #mmsm

Ajay Major, MD, MBA
@majorajay

10. 214 @SaemundurMD: PROs from iStopMM MGUS screening. Compared to pts not notified of MGUS (Arm 1), pts who underwent surveillance did not have different PHQ-9, GAD-7 or life satisfaction. Provocative! All pts consented which may affect QOL. #mmsm #ASH23 ashpublications.org/blood/article/…

Andrew Yee, MD
@andrew02114

Great, practical study presented at #ASH23 by @thorirlong from iStopMM that proposes a revised Binding Site free light chain ratio that is shifted up from 0.26-1.65 to e.g. 0.44-2.16 in patients <70 ash.confex.com/ash/2023/webpr…

Rahul Banerjee, MD, FACP
@RahulBanerjeeMD

10/ #ASH23 #244 and now to MGUS! Excellent work by @SaemundurMD et al:

If done right à la @iStopMM, MGUS screening with good follow-up plan actually associated with ⬇ anxiety.
(Not the prevailing opinion in some pockets of #MMsm Twitter…)

ash.confex.com/ash/2023/webpr…
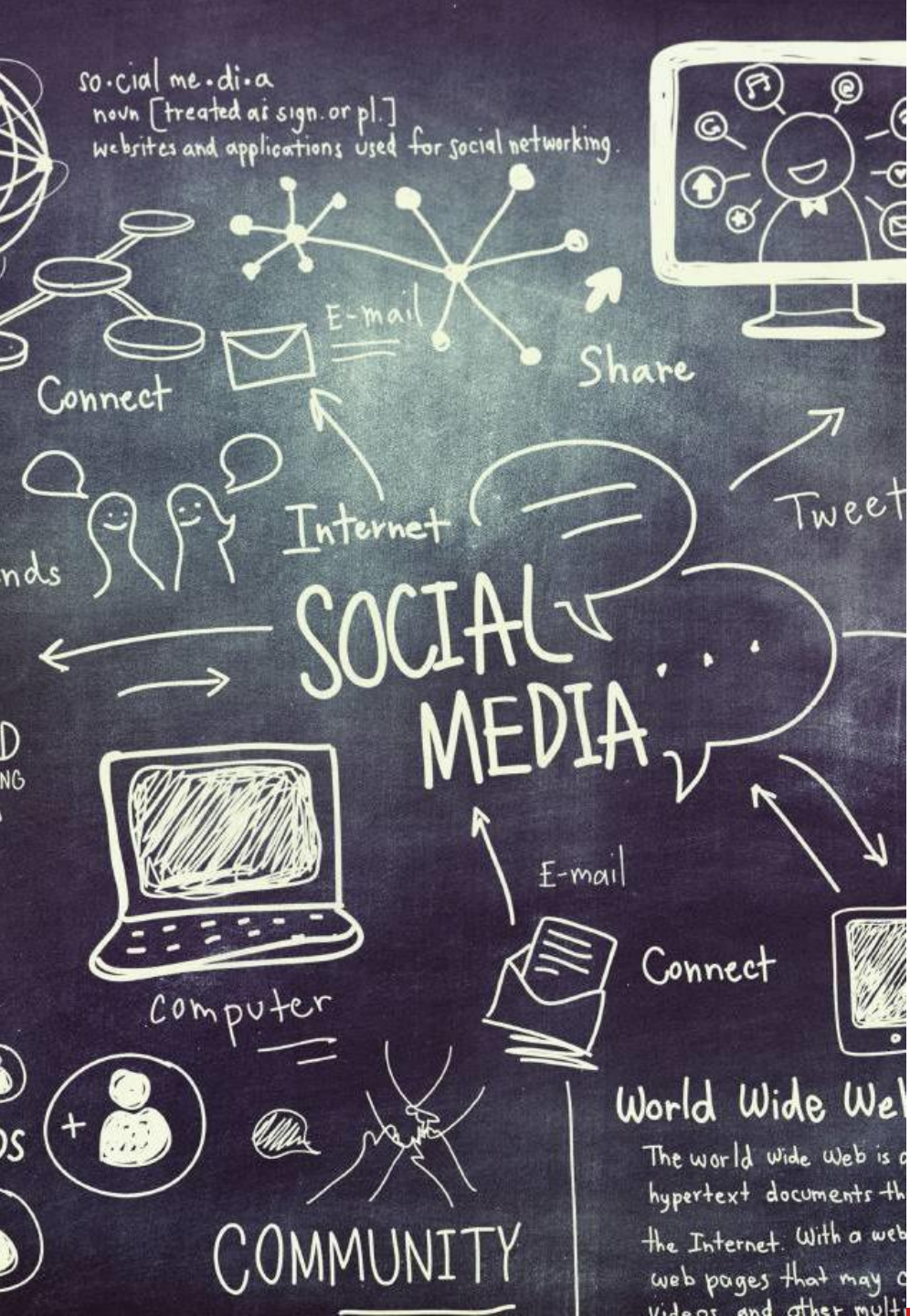
e-CongressTrack™

Focus on pharma companies

Curated list: pharmaceutical companies twitter handles that were analysed during ASH 2023

abbvie
@abbvie
@AbbVieUS
@VenclextaHCP

BeiGene
@BeiGeneGlobal

GSK
@GSK
@GSKUS

Kite Pharma
@KitePharma

Pfizer
@Pfizer
@PfizerOncMed
@pfizer_news
@PfizerCongress

SERVIER
@ServierPharma
@Servier
@AgiosPharma

Actinium Pharmaceuticals, Inc.
@ActiniumPharma

Bristol Myers Squibb
@bmsnews
@ScienceAtBMS
@BMSProd_USHCP
@BMS_Myeloma_US

Incyte
@Incyte

Alnylam PHARMACEUTICALS
@Alnylam

CSL Behring
@CSLBehring

JANSSEN
@JanssenGlobal
@JanssenUS
@JanssenEMEA
@DarzalexHCP_US
@JanssenUSOncMed

Lilly
@LillyPad
@LillyMedical
@LoxoLillyOnc

pharmacyclics
@Pharmacyclics

Sobi rare strength
@SobiNAmerica
@SobiHaemophilia

MERCK
@KEYTRUDA
@Merck

REGENERON
@Regeneron

Takeda
@TakedaPharma
@TakedaOncology

AMGEN
@Amgen
@AmgenOncology
@AmgenBiosim

AstraZeneca
@AstraZeneca
@AstraZenecaUS
@Oncology_at_AZ

VERTEX
@VertexScience
@VertexPharma

morphosys
@MorphoSys

NOVARTIS
@NovartisCancer
@NovartisOncMed
@NovartisScience
@NovartisOncCT
@NovartisNews

Genentech
@genentech

Daiichi-Sankyo
@DaiichiSankyoUS

astellas
@AstellasUS

novo nordisk
@novonordisk

Jazz Pharmaceuticals
@JazzPharma

Roche
@Roche

sanofi
@Sanofi
@SanofiUS
@SanofiGenzyme
@SanofiScience

Seagen
@SeagenGlobal

Karyopharm Therapeutics
@Karyopharm
@XPOVIO

GILEAD
@GileadSciences

17

There were a total of 502 mentions during the listening period including both owned and earned mentions.

Volume of mentions overtime ASH 2023: pharma companies
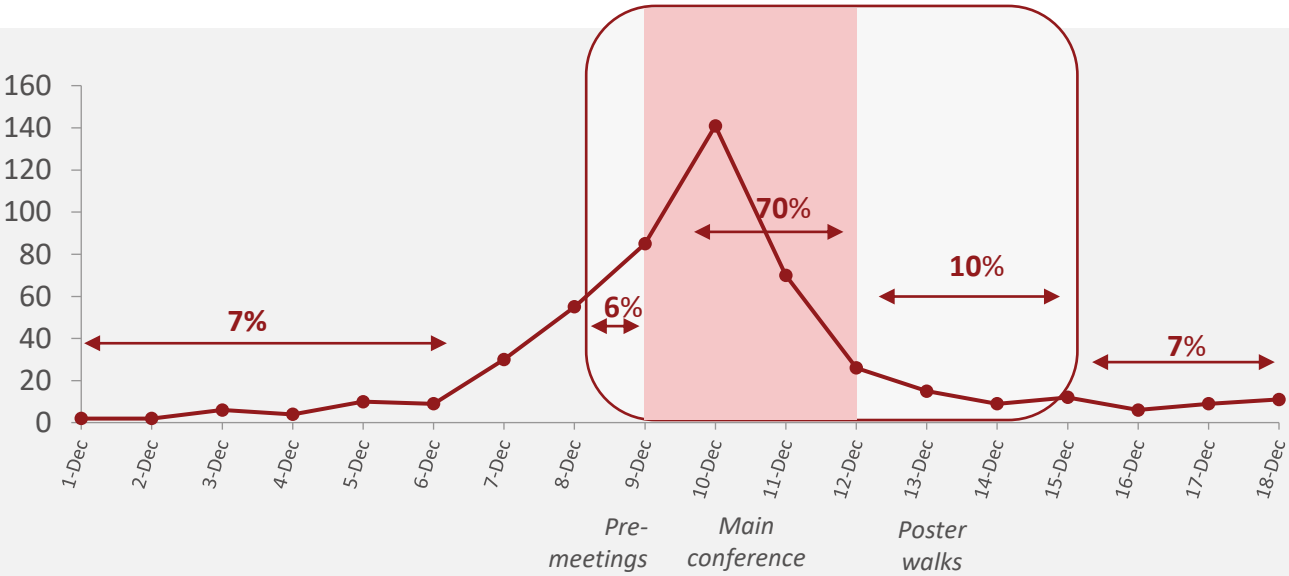
Total reach:
1.58 million*

Total impressions:
6.95 million**

*Reach is a number assigned to a piece of content which is designed to estimate how many different individuals are likely to have seen that content, by taking into account metrics such as retweets, replies, followers of retweeters, followers of author

**Impressions is a metric that only applies to Twitter and is a measure of the potential number of times a tweet may have been seen. Total impressions is the sum of the followers of the tweet author and the followers of any retweeting authors

Most engaging posts from pharma companies owned accounts

Promotional content from **AstraZeneca** highlighting its efforts towards protecting blood cancer patients from COVID-19

👁 *305,207*

Promotional content highlighting **Eli Lilly**'s oral poster which can be found _here_

👁 *26,077*

Video from Jeff Schaffnit, head of rare blood disorders in the US at **Sanofi**

👁 *83,598*

Most mentioned pharma companies

147 — AbbVie

76 — janssen

71 — sanofi

62 — NOVARTIS

57 — Kite A GILEAD Company
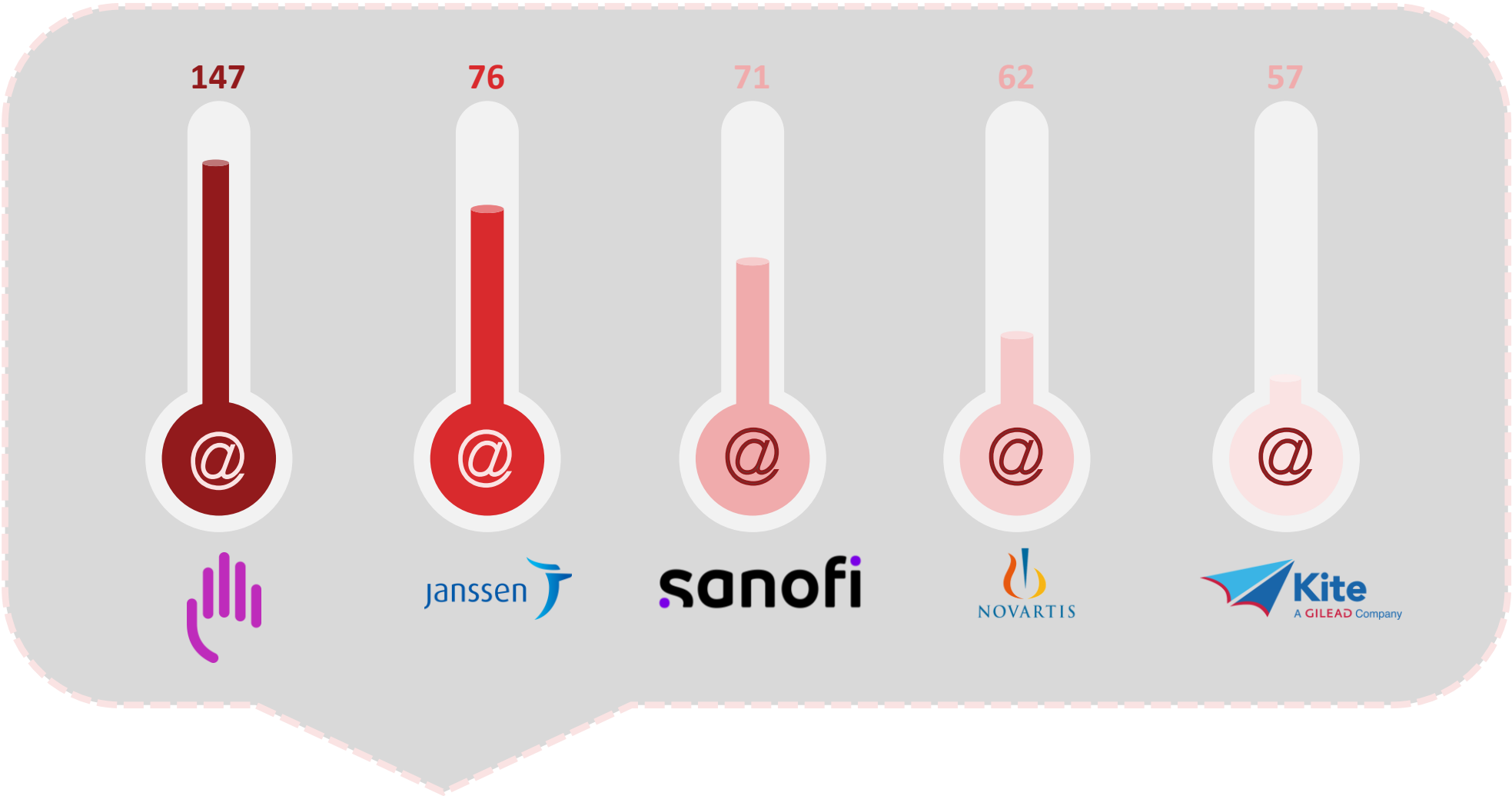
@mention, company mentions and #mentions

Top pharma companies in terms of engagement: Sanofi, Eli Lilly and BMS top companies in volume of mentions. Sanofi and BMS show strong performance in terms of engagement

Top 10 pharmaceutical companies by volume

sanofi — 11%
Lilly — 11%
10%
8%
8%
Genentech — 6%
janssen — 5%
5%
4%
4%

morphosys
Kite — A GILEAD Company
NOVARTIS
VERTEX
Pfizer
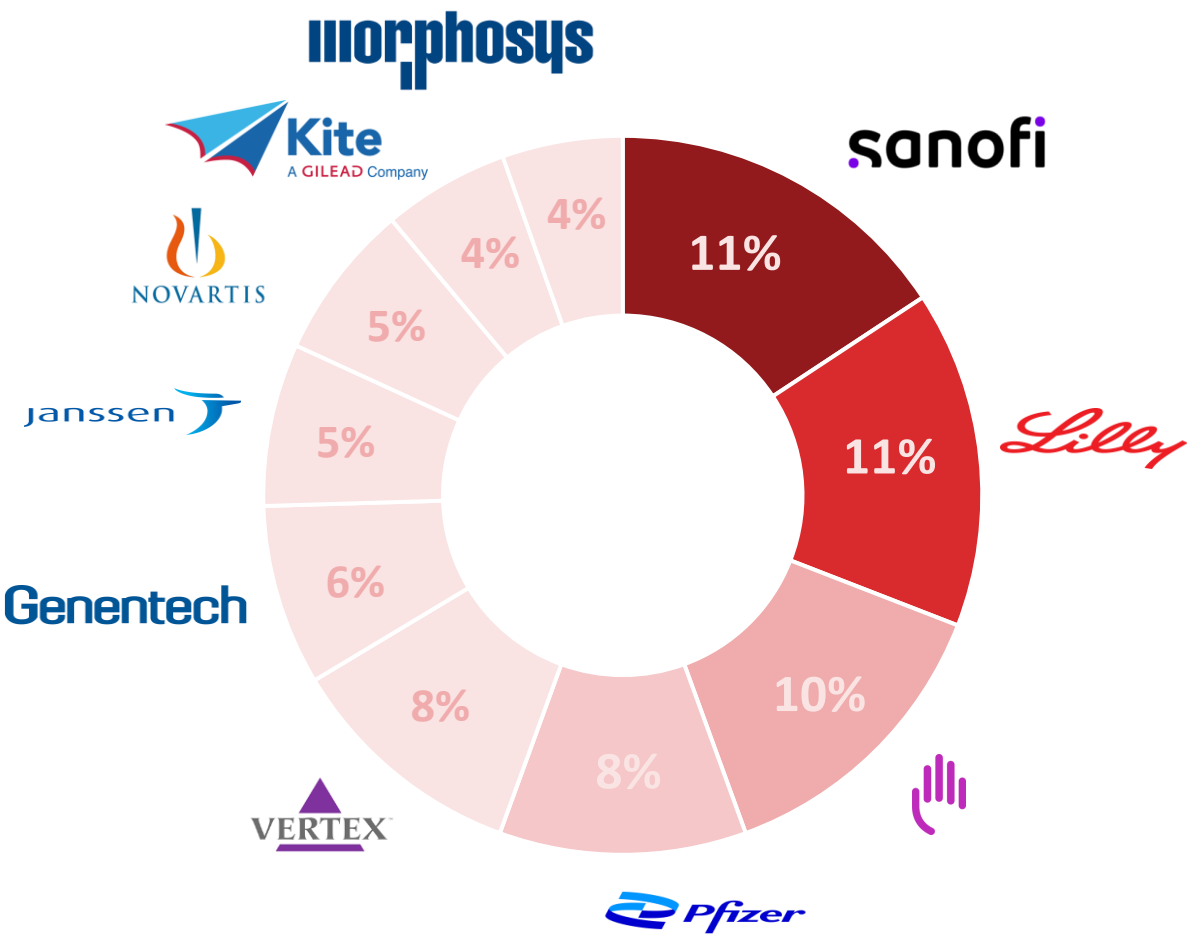
♡ Top likes
Likes are represented by a small heart and are used to show appreciation for a Tweet.

Novartis	Vertex	Regeneron
200	171	155
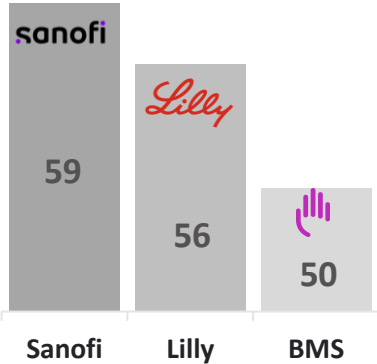
Top retweets + replies
A Retweet is a re-posting of a Tweet. A reply is a response to another person's Tweet.

Sanofi	Lilly	BMS
59	56	50
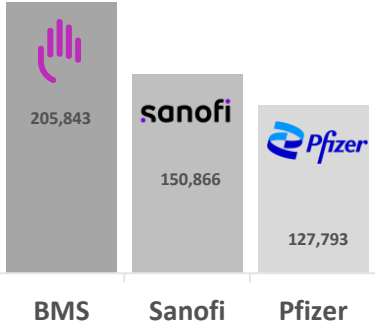
Top reach
Reach is a number assigned to a piece of content which is designed to estimate how many different individuals are likely to have seen that content,

BMS	Sanofi	Pfizer
205,843	150,866	127,793

Pharma universe N= 502 mentions
Listening period: December 2nd, 2023, to December 19th, 2023

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Top pharma companies ranked per impact*

BMS was the pharmaceutical company which generated most social impact during the ASH2023 conference.

*This APLUSA proprietary social media competitive score is generated by normalizing different data: volume of posts around the congress, reach generated from posts around the congress, retweets, and replies, to obtain a view of pharma companies that both generated and drove engagement during the congress. The normalized data obtained is further refined by applying a weight to each criterion to form a final score on a scale of 0 to 100. 100 being the most beneficial score.

	Social media competitive score*	Volume of ASH 2023 posts owned + earned	Reach	Retweets/replies/comments	Likes
Bristol Myers Squibb MC	80	50	205,843	83	116
sanofi	68	58	150,866	60	93
Lilly	62	56	102,949	112	171
VERTEX	56	40	127,793	23	47
NOVARTIS	56	26	71,381	63	155

Top pharma company by impact: BMS

Bristol Myers Squibb

Due to a stronger presence on social media, BMS is the top pharma company in terms of impact. In terms of engagement, a tweet presenting a phase 1 study evaluating the GPRC5D-targeted autologous CAR T-cell therapy BMS-986393 (CC-95266) in relapsed/refractory multiple myeloma, including in patients with prior BCMA-directed therapy received the most attention from online users.

ASH 2023 activity

@bmsnews/@scienceAtBMS/@BMSProd_USHCP/@BMS_Myeloma_US+earned mentions

Competitive score	80
Total posts	50
Retweets & replies	83

Channel statistics

|	
Total followers	1,097,422
Total reach	205,843

Top posts per engagement

Eric Smith @ESmithMDPhD

Amazing presentation @SusanBal9. Kudos to PIs, clinical teams, and @bmsnews team. So excited to see the high response rate, ongoing responses, and low infectious rate with our GPRC5D CAR; many with prior BCMA tx. #mmsm #ash23 @OmarNadeemMD @BerdejaJesus @TomBmt133 @DanaFarberNews

Traduire le post
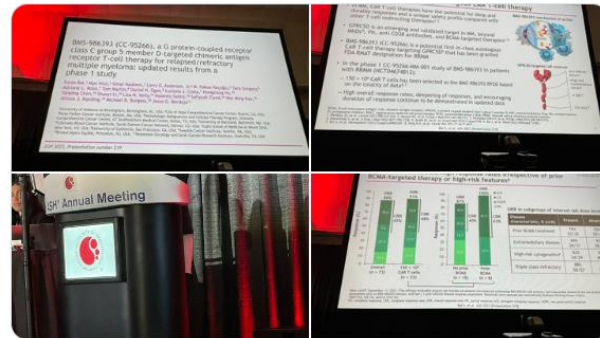
Bristol Myers Squibb @bmsnews

#MEDIA: We're excited to present data at #ASH23 that highlights our continued research into targeted #proteindegradation agents and their treatment potential in lymphoma. bit.ly/41q7zEv

Traduire le post
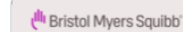
BMS presents data at ASH 2023

0:05

Top hashtags

#ash23
#mmsm
#media
#multiplemyeloma
#celltherapy
#proteindegradation
#ctdna
#hematology
#indolentlymphoma
#Lymphoma

Thanks for listening!

Social media listening can provide **additional insights and depth** into a variety of different work such as:

- Understanding the **dynamics and** areas of **priority** associated with different types **of conference attendees:** clinicians vs nurse practitioners vs industry professional's vs patients and patient advocacy groups

- **Voice of the patient** – do you know what's important to specific groups of patients with certain types of disease? What most concerns them?

- **Corporate reputation** – what's your public persona? **How are you perceived** by HCPs, by the general public, and by different groups of patients?

- **DOL and KOL identification** - Digital Opinion Leaders and Key Opinion Leaders : do you know who they are? Who are driving conversations online and offline around your topic of interest? Who to connect with to support your promotional activities?

- What **market trends or world events** might be **impacting your business** and the timely treatment of patients?

- **Future disrupters to your business**. Listening to what's being discussed and what individuals are excited about not only helps you keep your finger on the pulse but can often also **spark ideas for the future**. Alternatively, it can also help you plan a **competitive positioning** and preparedness platform as you start to **anticipate** what various **industry disrupters** could look like and what different forms they could take

For more information about *APLUSA's* work in social media listening, malignant or non-malignant hematological diseases, please email contact@aplusaresearch.com

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