2 - Scrape Wound

Source: Crunchyroll
Translator:
Editor:
Timer:
QC:
(Please feel free to edit the speaker names if incomplete or inaccurate. Names are handled on a best-effort basis depending on the info on the source file. Dialogue is left as is.)

[00:07] ---
Inside the human body,
[00:10] ---
roughly 37.2 trillion cells
work energetically,
[00:12] ---
DENDRITE
[00:14] ---
All day every day.
[00:16] ---
ANTIBODY ENCYCLOPEDIA
[00:16] ---
24 hours and 365 days.
[00:19] ---
WHITE BLOOD CELL
[00:19] ---
They are all working very hard.
[00:21] ---
UNDER CONSTRUCTION
[00:21] ---
PLATELETS
[00:25] ---
This is the inside of a human body.
[00:28] ---
CAPILLARY 34
[00:28] ---
Um...
SIGN RED BLOOD CELLS:
They carry oxygen
and carbon dioxide
using blood circulation.
[00:36] ---
Huh?
[00:38] ---
Which way was it again?

[00:39] ---
CELL
[00:41] ---
What are you doing?
[00:44] ---
Senpai!
[00:46] ---
Why are you here?
[00:47] ---
Seriously! You're as directionally-challenged as ever, aren't you?
[00:51] ---
Lost your way again?
[00:52] ---
Sorry.
[00:54] ---
Let me see.
[00:55] ---
Hey, I'm heading that way, too.
[00:58] ---
So wanna tag along with me partway?
[01:00] ---
Yes! I'm counting on you!
[01:05] ---
Heave-ho! Heave-ho! Heave-ho!
[01:09] ---
Heave-ho! Heave-ho! Heave...
[01:13] ---
So cute!
[01:15] ---
They sure are!
[01:16] ---
Heave-ho! Heave-ho! Heave-ho! Heave-ho!
[01:22] ---
Everybody, stop!
SIGN PLATELETS:
A type of blood component.
They aggregate when the blood vessels are damaged, and cover the wounds.
[01:25] ---
Platelets. A type of blood component.
[01:29] ---
They aggregate
when the blood vessels are damaged,
[01:31] ---
and cover the wounds.
[01:34] ---

There's a stairway!
[01:37] ---
You're right!
[01:42] ---
Everybody, be careful!
[01:45] ---
Okay!
[02:00] ---
Heave-ho! Heave-ho!
[02:14] ---
We made it down!
[02:15] ---
Yay!
[02:19] ---
Big Brother Red Blood Cell!
[02:21] ---
- Let me ride on your shoulders!
- Put your hat on straight.
[02:23] ---
- Thanks!
- You know what? You see...
[02:25] ---
- You made it down, huh?
- Good job!
[02:26] ---
These days,
[02:27] ---
things are peaceful
inside this blood vessel!
[04:00] ---
EPISODE 2:
SCRAPE WOUND
[04:03] ---
Scrape wound.
[04:09] ---
Heave-ho!
[04:11] ---
I dropped it!
[04:13] ---
Can someone pick it up?
[04:17] ---
This?
[04:18] ---
Big Sister Red Blood Cell!
[04:22] ---
Here you go!
[04:24] ---

Thank you!
[04:25] ---
You're welcome!
[04:29] ---
Everybody! Let's wash the fibrin here!
[04:32] ---
Okay!
[04:34] ---
Heave-ho, heave-ho, heave-ho, heave-ho!
[04:39] ---
Scrub, scrub! Scrub, scrub!
[04:43] ---
All right! Let's head off to work!
[04:45] ---
Right, Senpai!
[04:47] ---
No, no.
[04:48] ---
This way.
[04:49] ---
I-I'm so sorry.
[04:51] ---
Make sure you get
all these routes down pat
[04:53] ---
so you can stand on your own two feet.
[04:55] ---
Got that?
[04:56] ---
Right!
[04:59] ---
SKIN
400 µm
[05:12] ---
It's so peaceful, isn't it, Senpai?
[05:15] ---
I guess so.
[05:17] ---
But you know what, from this point on,
you need to stay alert.
[05:21] ---
Why is that?
[05:22] ---
Since this part of the blood vessel
is really close to the skin,
[05:25] ---
even the slightest trauma will have a huge—

[05:33] ---
Wh-What was that just now?
[05:35] ---
The skin's susceptible
to external stimulation.
[05:38] ---
Good thing there wasn't
much damage this time!
[05:41] ---
Damage?
[05:42] ---
For example...
[05:48] ---
What was that?
[05:49] ---
H-Hey! Look at that!
[05:55] ---
There's light over there!
[06:16] ---
What is that?
[06:26] ---
It's sucking me in!
SIGN WHITE BLOOD CELLS:
Their main task is to eliminate
foreign substances from outside,
such as bacteria and viruses.
White blood cells can bind
to vascular endothelial cells
thanks to L-selectin, an adhesive molecule.
[06:36] ---
Hey. So we meet again.
[06:38] ---
Wh-White Blood Cell!
[06:47] ---
What's going on? What's all this?
[06:50] ---
Isn't it obvious?
[06:59] ---
Due to external trauma,
[07:00] ---
the blood vessel's outer wall
has been destroyed,
[07:03] ---
causing blood cells to get swept away.
[07:06] ---
Run!
[07:08] ---

In other words,

[07:10] ---

it's an abrasion!

[07:11] ---

Abrasion?

SIGN ABRASION (GRAZE):

A wound formed when the skin is scraped.
Refers to wounds that are no deeper
than the epidermis.

[07:13] ---

Abrasion.

[07:14] ---

A wound formed when the skin is scraped.

[07:17] ---

Refers to wounds that are no deeper
than the epidermis.

[07:21] ---

If we fall from this wound, it'll be the end.

[07:24] ---

There'll be no getting back to this world.

[07:27] ---

If we fall, will it be the end?

[07:30] ---

But that means we're in big trouble!
We've got to do something quick!

[07:34] ---

Quiet!

[07:36] ---

This wound will be taken care of eventually.

[07:38] ---

It's just that there's a hassle
we have to deal with first.

[07:41] ---

What I mean is...

[07:43] ---

They're here!

[07:45] ---

Get down!

[07:53] ---

Damn germs!

[07:57] ---

So this is the inside of a human body, huh?

[08:01] ---

Just like the rumors,
it's an ideal place for us to spawn!

[08:04] ---

Not bad, wouldn't you say?

SIGN STAPHYLOCOCCUS AUREUS:
An antigen residing in the skin and pores.
It's highly toxic, and if it invades the body
through an abrasion, it can cause
skin infections, food poisoning,
pneumonia, meningitis, sepsis and the like.

[08:06] ---
Staphylococcus aureus.

[08:07] ---
An antigen residing in the skin and pores.

[08:10] ---
It's highly toxic, and if it invades
the body through an abrasion,

[08:15] ---
it can cause skin infections, food poisoning,
pneumonia, meningitis, sepsis and the like.

[08:25] ---
They didn't waste any time, did they?

[08:28] ---
Now wipe them out!

[08:29] ---
Roger!

[08:34] ---
You guys, make a run for it!

[08:35] ---
R-Right!

[08:46] ---
White Blood Cell!

[08:47] ---
You need to move over here to fight!
Or else you're going to get sucked in, too!

[08:51] ---
Don't worry about me!

[08:52] ---
Just get out of here!

[08:56] ---
Damn him! How dare he...

[08:58] ---
Let's drag this bastard out!

[09:00] ---
Hurry!

[09:01] ---
Come on, let's go!

[09:07] ---
BLOOD VESSEL UNDER CONSTRICTION
ROAD BLOCKED

[09:07] ---

What the... The blood vessel's constricting?
[09:10] ---
Seems like something happened over there!
[09:12] [SONG] ---
VASOCONSTRICTION:
When a blood vessel
is injured, it attempts
to slow down the
bleeding by constricting.
[09:13] ---
Vasoconstriction.
[09:14] ---
When a blood vessel is injured,
[09:16] ---
BRACHIAL ARTERY
[09:16] ---
ASCENDING AORTA
[09:16] ---
ULNAR ARTERY
[09:16] ---
CAPILLARY
[09:17] ---
it attempts to slow down
the bleeding by constricting.
[09:24] ---
This is terrible!
[09:25] ---
A gigantic scrape
was just created down there,
[09:28] ---
and now the wound's teeming with bacteria!
[09:30] ---
What?
[09:31] ---
Run!
[09:31] ---

[09:32] ---
Did she say bacteria?
[09:33] ---
Hurry up!
[09:38] ---
Are you okay?
[09:39] ---
S-Sorry!
[09:41] ---
Hurry!

[09:42] ---
Right!
[09:43] ---
You guys need to get out of here now, too!
[09:50] ---
We just hijacked this world!
SIGN STREPTOCOCCUS PYOGENES:
Resides in the throat, digestive organs,
skin and the like. Though it's quite
a common persistent bacteria,
it can often lead to a variety of ailments.
[09:54] ---
Streptococcus pyogenes.
[09:55] ---
Resides in the throat,
digestive organs, skin and the like.
[09:59] ---
Though it's quite a common
persistent bacteria,
[10:01] ---
it can often lead to a variety of ailments.
[10:05] ---
All you Red Blood Cells
delivering nutrients, line up over there!
SIGN PSEUDOMONAS:
One of the most common types
of persistent bacteria
existing in natural environments.
Can cause pseudomonas infections.
[10:09] ---
Pseudomonas.
[10:10] ---
One of the most common types of persistent
bacteria existing in natural environments.
[10:15] ---
Can cause pseudomonas infections.
[10:18] ---
If you're not delivering, I'll kill you!
[10:21] ---
Run!
[10:23] ---
Oh no! There's a valve!
[10:24] ---
Open up! Somebody!
SIGN VENOUS VALVE:
Prevents blood from backing up.
Keeps the blood flowing one-way

through the vessels.
[10:27] ---
The venous valve.
[10:29] ---
Prevents blood from backing up.
[10:31] ---
Keeps the blood flowing one-way
through the vessels.
[10:36] ---
H-H-H-H-Help us!
[10:40] ---
Die!
[10:46] ---
We're all gonna die!
[10:51] ---
Didn't I tell you?
[10:52] ---
Anyone who's not delivering nutrients...
[10:55] ---
will die!
[11:04] ---
I-It's the White Blood Cells!
[11:07] ---
Where the hell are the germs?
[11:09] ---
They're so dead!
[11:10] ---
Hey, where's the thing called "abrasion"?
[11:13] ---
I-It's that way!
[11:14] ---
Is that right? Thanks!
[11:16] ---
See ya!
[11:21] ---
So the White Blood Cells came!
[11:23] ---
Does this mean we're safe now?
[11:25] ---
Nah, I wouldn't say
we're out of the woods just yet!
[11:27] ---
Remember how many of them
came swarming in?
[11:29] ---
Oh well, guess they've got
their work cut out for them.

[11:31] ---
But really, those White Blood Cells
are all a bunch of freaks, don't you think?
[11:35] ---
Go! Go!
[11:37] ---
Kill 'em! Kill 'em!
[11:40] ---
Take that!
[11:50] ---
Immobilize them!
[11:51] ---
Roger that!
[11:55] ---
All right, now this White Blood Cell's toast!
[11:58] ---
You guys go after the other White Blood Cells!
[12:01] ---
- Roger!
- Roger!
[12:04] ---
Now that you're surrounded
by blade-like thorns, you can't move!
[12:08] ---
Die!
[12:11] ---
No way!
[12:18] ---
That's odd.
[12:19] ---
They could've escaped
by heading even deeper into this body
[12:22] ---
instead of fighting me here.
[12:25] ---
No. 1146, do you read me?
[12:28] ---
Yeah. What's up?
[12:30] ---
No. 2048 is in a dire situation near you!
[12:33] ---
Head over there right away!
[12:35] ---
We'll join you
once we take care of these germs!
[12:38] ---
Something's off!

[12:45] ---
The germs will be making
a desperate charge this way!
[12:47] ---
You watch your back, too!
[12:49] ---
Roger that!
[12:52] ---
Dammit! Ouch, ouch!
[12:56] ---
What the hell are they planning to do?
[13:01] ---
Cells at Work!
[13:08] ---
Cells at Work!
[13:19] ---
Stay away!
[13:22] ---
There's no end to them!
[13:29] ---
Get out of here now!
[13:31] ---
My bad! You saved me!
[13:35] ---
No, it's all good. More importantly...
[13:38] ---
Well, well, not bad!
[13:40] ---
But I wonder
how long you can hold out.
[13:42] ---
There are tons more of us on their way in!
[13:50] ---
Your backup is here!
[13:52] ---
I owe you—
[13:54] ---
Dammit, the draft...
[13:57] ---
No. 4989!
[13:59] ---
N-No way! No. 4989!
[14:02] ---
Keep your L-selectin on!
SIGN L-SELECTIN:
A type of glycoprotein involved
in binding white blood cells

and vascular endothelial cells.
[14:08] ---
Oh crap! Behind us!
[14:09] ---
Your friends are rather flaky,
aren't they now?
[14:17] ---
How I pity you.
[14:19] ---
Aren't you getting a little tired?
[14:24] ---
Quite pathetic, you Neutrophils.
[14:27] ---
All the battling you do to protect
other cells day after day...
[14:31] ---
But when you find yourselves in trouble,
[14:34] ---
not one of them comes to your rescue.
[14:38] ---
Did you just call us Neutrophils,
not White Blood Cells?
[14:42] ---
I see you've at least
done some homework.
[14:44] ---
Oh my, of course I have.
[14:46] ---
After all, I heard the rumors
about a certain Pneumococcus perishing
[14:50] ---
because he didn't case the joint
before he invaded!
[14:52] ---
Wasn't that your kid brother?
[14:55] ---
Oh, I've done all the research I need.
[14:57] ---
All about you
members of the immune system.
[15:00] ---
Right down to the fact that you scrubs,
known as the Neutrophils,
[15:04] ---
are the first responders
to a bacterial invasion through an abrasion.
[15:07] ---

As well as the fact that the big guns,
the Macrophages and Monocytes,
[15:10] ---
are always late to the party.
[15:12] ---
Not to mention that the brigade known
as Lymphocytes
[15:14] ---
never show up until even later.
[15:18] ---
Do you understand?
[15:20] ---
In other words,
[15:21] ---
as long as I take you
Neutrophils out here,
[15:24] ---
I will
[15:26] ---
have the upper hand!
[15:45] ---
Here's the deathblow!
[15:49] ---
Wha... You blocked it?
How do you even have the energy?
[15:55] ---
Oh, I get it now. What a lame strategy.
[15:58] ---
Wh-What did you say?
[16:01] ---
Looks like you forgot the blood cell
you need to be careful of!
[16:05] ---
Not a Macrophage or a Monocyte
or a Killer T Cell or a B Cell.
[16:10] ---
Those powerful helpers of ours...
[16:13] ---
Professionals who can
turn the tide just like that...
[16:16] ---
They're that powerful!
[16:20] ---
Wh-Who are you talking about?
[16:22] ---
Thank you for your hard work!
[16:30] ---

Remember to stay together
so no one loses their way!

[16:33] ---

Right!

[16:34] ---

No fighting with other kids!

[16:36] ---

Right!

[16:37] ---

Remember to use your GP1b
so you won't get blasted away!

SIGN GP1b:

When there's damage
to the blood vessel,
platelets bind through
the von Willebrand Factor,
and adhere to the
vascular endothelial cell.

[16:41] ---

Right!

[16:43] ---

Um...

SIGN COAGULATION FACTOR:

A substance necessary
to coagulate the blood.

[16:45] ---

Did you all bring
your coagulation factors?

[16:47] ---

Yes, we did!

[16:49] ---

All right!

[16:51] ---

Then,

[16:52] ---

let's go!

[16:54] ---

Right!

[16:55] ---

Who are these little squirts?

[16:59] ---

Back up those Platelets!

[17:03] ---

Thank you very much!

[17:09] ---

What do you think you're doing?

[17:13] ---

Make sure you don't fall!

[17:15] ---

No problem!

[17:18] ---

We brought you the fibrin!

SIGN FIBRIN:

A protein involved in clotting the blood.

[17:20] ---

Right! Now then, please take out
your coagulation factors!

[17:24] ---

Right!

[17:25] ---

Attach the fibrin
to the coagulation factors like this.

[17:29] ---

Right!

[17:31] ---

Finished!

[17:32] ---

This part, too!

[17:34] ---

All right, then. Here we go!

[17:40] ---

Heave-ho!

[17:42] ---

Miss Staphylococcus, look...

[17:47] ---

Clot completed!

[17:50] ---

Ugh!

[17:53] ---

Blood clotting.

SIGN BLOOD CLOTTING:

Platelets, activated by a binding protein
called the "von Willebrand Factor,"
aggregate to close a wound.
Afterwards, proteins in the blood
called "coagulation factors" are activated,
ultimately forming a fibrin mesh
over the entire platelet plug, and clotting.

[17:54] ---

Platelets, activated by a binding protein

[17:56] ---

called the "von Willebrand Factor,"
aggregate to close a wound.

[18:05] ---

Afterwards, proteins in the blood
called "coagulation factors" are activated,
[18:10] ---
ultimately forming a fibrin mesh
over the entire platelet plug, and clotting.
[18:18] ---
Now we can finally get rid of them!
[18:20] ---
Yeah.
[18:22] ---
The wound's been plugged?
[18:24] ---
But now we can't summon any more friends!
[18:26] ---
All right, now that there's no risk
of falling, we've got this!
[18:31] ---
I'll kill you, germ!
[18:40] ---
Turns out you were the one
with the flaky friends.
[18:44] ---
And you're the only one left now.
[18:48] ---
Th-Then,
[18:49] ---
I alone will have to...
[18:56] ---
Too late for that now!
[19:05] ---
Thank you for your hard work!
[19:11] ---
Hey, No. 4989, you survived!
[19:14] ---
Yeah. That was scary.
[19:17] ---
Hey, White Blood Cell!
[19:20] ---
White Blood Cell!
[19:23] ---
Big Sister, over there!
[19:25] ---
There you are! White Blood Cell!
[19:31] ---
Red Blood Cell.
[19:33] ---
Thank goodness!

[19:34] ---
I see you made it!
[19:36] ---
Yeah, this is nothing but a scratch.
[19:39] ---
Fitting for an abrasion.
[19:42] ---
N-Never mind that!
What about the others?
[19:46] ---
Are they all okay?
[19:47] ---
Oh yes! They said
they'd all be coming over later,
[19:51] ---
but I asked to come see you first.
[19:55] ---
Is that right?
[19:59] ---
U-Um...
[20:02] ---
Thank you very much!
[20:05] ---
Seriously!
[20:07] ---
No, there's no need to thank me.
[20:10] ---
We just did our jobs. That's all.
[20:13] ---
Oh no! No, no!
[20:15] ---
I came because I just had to thank you!
[20:19] ---
All you White Blood Cells
fought those antigens for us,
[20:23] ---
and the Platelets closed up the wound.
[20:27] ---
You protected the peace
in this blood vessel,
[20:31] ---
but we Red Blood Cells were useless.
All we did was run away!
[20:35] ---
So I wanted to at least thank you properly.
[20:39] ---
Not that there's anything

I can do but say thank you.
[20:46] ---
No, that's not really true.
[20:49] ---
Red Blood Cell,
you've been really helpful today.
[20:54] ---
In the present continuous tense, that is.
[20:59] ---
U-Um, actually, White Blood Cell,
[21:01] ---
for some reason, you haven't moved
a muscle since I got here.
[21:07] ---
Oh, wait! Am I stuck?
[21:10] ---
I can't move!
[21:11] ---
Right.
[21:15] ---
My senpais are being led away
by the little Platelets!
[21:21] ---
See, whenever a hole opens up
in a blood vessel,
[21:23] ---
what happens is that
until the outer wall cells are restored,
[21:25] ---
- Tea please!
- It's hot!
[21:26] ---
the bodies of blood cells like us
are used to plug that hole.
[21:28] ---
My back hurts!
[21:32] ---
This is called "secondary hemostasis."
[21:34] ---
Well, never mind that for now!
[21:37] ---
White Blood Cell, how long
do we have to stay like this?
[21:40] ---
Another three days, I guess.
[21:43] ---
Hot!

[21:45] ---
Water please!
[21:46] ---
Or tea!
[21:49] ---
When this clot dries, it will become a scab!
[23:24] ---
NEXT EPISODE
PREVIEW
[23:26] ---
Macrophage, what is that?
[23:28] ---
It's a hatchet!
[23:30] ---
A hatchet?
[23:32] ---
Next episode of "Cells at Work!",
"Influenza"!
[23:35] ---
EPISODE 3:
INFLUENZA
[23:35] ---
All right.
[23:37] ---
Let's get to work!

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